



Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit gives approval for the development/ project listed that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. This permit must be posted at the site of work as to be clearly visible, and must remain posted during entirety of development.

Permit: #17-492

Date Approved: December 18, 2017 **Expires: December 18, 2018**

Issued to: Antero Midstream, LLC

POC: Rachel McKinney

Company Address: 535 White Oaks Blvd. Bridgeport, WV 26330

Project Address: Sherwood to Smithburg

Firm: 54017C0140C

Lat/Long: 39.268408N, -80.734558W

Purpose of Development: Sherwood to Smithburg Pipeline Extension

Issued by: George C. Eidel, CFM, OEM Director/Doddridge County FPM (or designee)

Date: December 18, 2017

For additional information regarding this permit, please contact
Doddridge County Floodplain Manager at 304.873.2631, or via email at
doddridgecountyfpm@gmail.com
118 East Court Street; West Union, WV 26456

7017 0660 0000 2275 7208

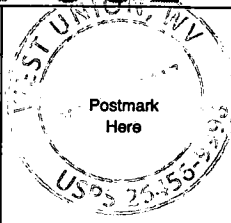
U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
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For delivery information, visit our website at www.usps.com

OFFICIAL USE

Certified Mail Fee
\$ 3.35
Extra Services & Fees (check box, add fees as appropriate)
 Return Receipt (hardcopy) \$ 2.75
 Return Receipt (electronic) \$
 Certified Mail Restricted Delivery \$
 Adult Signature Required \$
 Adult Signature Restricted Delivery \$

Postage
\$.49
Total Postage and Fees
\$ 6.59



Sent To
Elwood P. Elizabeth Rill
Street and Apt. No., or PO Box No.
4619 Glenville Rd.
City, State, ZIP+4®
Glen Rock, PA 17327

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 0660 0000 2275 7215

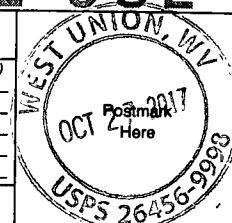
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Extra Services & Fees (check box, add fees as appropriate)
 Return Receipt (hardcopy) \$ 2.75
 Return Receipt (electronic) \$
 Certified Mail Restricted Delivery \$
 Adult Signature Required \$
 Adult Signature Restricted Delivery \$

Postage
\$.49
Total Postage and Fees
\$ 6.59



Sent To
Columbia Gas Transmission, LLC
Street and Apt. No., or PO Box No.
1700 MacCorkle Ave. SE
City, State, ZIP+4®
Charleston, WV 25314

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 0660 0000 2275 7222

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\$ 3.35
Extra Services & Fees (check box, add fees as appropriate)
 Return Receipt (hardcopy) \$ 2.75
 Return Receipt (electronic) \$
 Certified Mail Restricted Delivery \$
 Adult Signature Required \$
 Adult Signature Restricted Delivery \$

Postage
\$.49
Total Postage and Fees
\$ 6.59



Sent To
Ronald L. Law
Street and Apt. No., or PO Box No.
472 Tent Church Rd.
City, State, ZIP+4®
Colliers, WV 26035

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 0660 0000 2275 7239

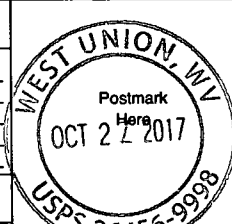
U.S. Postal Service™
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OFFICIAL USE

Certified Mail Fee
\$ 3.35
Extra Services & Fees (check box, add fees as appropriate)
 Return Receipt (hardcopy) \$ 2.75
 Return Receipt (electronic) \$
 Certified Mail Restricted Delivery \$
 Adult Signature Required \$
 Adult Signature Restricted Delivery \$

Postage
\$.49
Total Postage and Fees
\$ 6.59



Sent To
Markwest Liberty Midstream Resources, LLC
Street and Apt. No., or PO Box No.
1515 Poplar St., Tower 1, Suite 1
City, State, ZIP+4®
Denver, CO 80202

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Columbia Gas Transmission, LLC
 1700 MacCorkle Avenue SE
 Charleston, WV 25314



9590 9402 2859 7069 5380 93

2. Article Number (Transfer from service label)

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

 Agent Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?
If YES, enter delivery address below: Yes No

3. Service Type

- | | |
|--|---|
| <input type="checkbox"/> Adult Signature | <input type="checkbox"/> Priority Mail Express® |
| <input type="checkbox"/> Adult Signature Restricted Delivery | <input type="checkbox"/> Registered Mail™ |
| <input type="checkbox"/> Certified Mail® | <input type="checkbox"/> Registered Mail Restricted Delivery |
| <input type="checkbox"/> Certified Mail Restricted Delivery | <input type="checkbox"/> Return Receipt for Merchandise |
| <input type="checkbox"/> Collect on Delivery | <input type="checkbox"/> Signature Confirmation™ |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input checked="" type="checkbox"/> Insured Mail | |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) | |

USPS TRACKING#



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

9590 9402 2859 7069 5380 93

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

Doddridge County OEM/CFM
George Eidel

250 NEE 1 616C2211/03/17
FORWARD TIME EXP RTN TO SEND
: DODDRIDGE CO PUBLIC LIBRARY
170 MARIE ST
WEST UNION WV 26455-1132

FWD

RETURN TO SENDER



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Elwood P. & Elizabeth Rill
4619 Glenville Road
Glen Rock, PA 17327



9590 9402 2859 7069 5381 09

2. Article Number (Transfer from service label)

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *S. ELIZABETH RILL* Agent
 Addressee

B. Received by (Printed Name)

S. Elizabeth Rill C. Date of Delivery
10-31-17

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

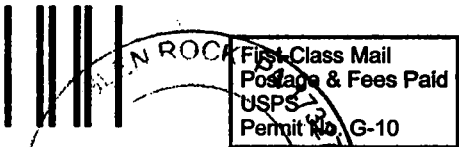
- | | |
|--|---|
| <input type="checkbox"/> Adult Signature | <input type="checkbox"/> Priority Mail Express® |
| <input type="checkbox"/> Adult Signature Restricted Delivery | <input type="checkbox"/> Registered Mail™ |
| <input type="checkbox"/> Certified Mail® | <input type="checkbox"/> Registered Mail Restricted Delivery |
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| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail | |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) | |

USPS TRACKING #



9590 9402 2859 7069 5381 09

United States
Postal Service



• Sender: Please print your name, address, and ZIP+4® in this box•

Doddridge County OEM/CFM
George Eidel
105 Court Street, Suite 3
West Union, WV 26456

17-492



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ronald L. Law
472 Tent Church Road
Colliers, WV 26 035



9590 9402 2859 7069 5380 86

2. Article Number (Transfer from service label)

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

B. Received by (Printed Name)

-
- Agent
-
-
- Addressee

C. Date of Delivery

 D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

- | | |
|--|---|
| <input type="checkbox"/> Adult Signature | <input type="checkbox"/> Priority Mail Express® |
| <input type="checkbox"/> Adult Signature Restricted Delivery | <input type="checkbox"/> Registered Mail™ |
| <input type="checkbox"/> Certified Mail® | <input type="checkbox"/> Registered Mail Restricted Delivery |
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| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail | |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) | |

USPS TRACKING#



First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

9590 9402 2859 7069 5380 86

**United States
Postal Service**

• Sender: Please print your name, address, and ZIP+4® in this box•

**Doddridge County OEM/CFM
George Eidel
105 Court Street, Suite 3
West Union, WV 26456**

17-492





ANTERO MIDSTREAM LLC
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Oct-18-2017	108384	\$1,750.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
SR10182017-1	10/18/17	FLOODPLAIN PERMIT SHERWOOD TO SMITH	1,750.00	0.00	1,750.00

FP # 17-492

COPY

COPY

COPY

COPY

COPY

TOTAL INVOICES PAID →

1,750.00

0.00

1,750.00

DETACH AND RETAIN FOR TAX PURPOSES

THIS CHECK HAS A COLORED FACE ON WHITE STOCK AND AN ARTIFICIAL WATERMARK ON THE BACK.



ANTERO MIDSTREAM LLC
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Wells Fargo
Denver, CO

Check No. 108384

11-24
412

800 - AP ACCT WELLS FARGO

Void After 90 Days

CHECK NUMBER	DATE	PAY EXACTLY
108384	Oct-18-2017	\$1,750.00

PAY EXACTLY \$1,750.00

One Thousand Seven Hundred Fifty Dollars and Zero Cents

TO THE ORDER OF

DODDRIDGE COUNTY COMMISSION
118 E COURT ST STE 1~
WEST UNION, WV 26456

COPY

COPY

COPY

[Handwritten Signature]

⑈ 108384 ⑈ ⑆ 041203824⑆ 9657481710⑈



ANTERO MIDSTREAM LLC
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Oct-18-2017	108384	\$1,750.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
SR10182017-1	10/18/17	FLOODPLAIN PERMIT SHERWOOD TO SMITH	1,750.00	0.00	1,750.00

FP # 17-492

Doddridge County, West Virginia

RECEIPT NO: 9897

DATE: 2017/10/30

FROM: ANTERO MIDSTREAM

AMOUNT: \$ 1,750.00

ONE THOUSAND SEVEN HUNDRED FIFTY DOLLARS AND 00 CENTS

FOR: #17-492 FLOODPLAIN PERMIT SHERWOOD TO SMITH

00000108384 FP-BUILDING PERMITS

020-318

TOTAL: \$1,750.00

MICHAEL HEADLEY

SHERIFF & TREASURER

MEC

CLERK

Customer Copy

TOTAL INVOICES PAID ==>

1,750.00

0.00

1,750.00

DETACH AND RETAIN FOR TAX PURPOSES

FLOODPLAIN PERMIT #17-492

Antero Midstream/ Sherwood to Smithburg Pipeline Extension

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	10/26/17	
US ARMY CORP. ENGINEERS (USACE)	11/6/17	
US FISH & WILDLIFE SERVICES (USFWS)	11/6/17	
WV DEPT. NATURAL RESOURCES (WVDNR)	11/6/17	
WV DEPT. ENVIROMENTAL PROTECTION (WVDEP)		
STATE HISTORIC & PRESERVATION OFFICE (SHPO)	11/6/17	
OFFICE of LAND & STREAM (OLS)	11/6/17	
DATE OF COMMISSION READING	11/7/2017	
DATE AVAILABLE TO BE GRANTED	11/27/2017	
PERMIT GRANTED		
COMPLETE		

7017 0660 0000 2275 7208

7017 0660 0000 2275 7215

7017 0660 0000 2275 7222

7017 0660 0000 2275 7239



Doddridge County Floodplain Permits

(Week of November 6, 2017)

Please take notice that on the **26th** day of **October, 2017**, **Antero Midstream, LLC** filed an application for a Floodplain Permit **(#17-492)** to develop land located at or about **2991 Route 18 S. Coordinates 39.268408 N, -80.734558 W**. The Application is on file with the Clerk of the County Court and may be inspected or copied during regular business hours. Any interested persons who desire to comment shall present the same in writing by **November 27, 2017** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Clerk of the County Court at 108 Court Street Ste. 1, West Union, WV 26456. **This project is the Sherwood to Smithburg Pipeline Extension.**


Antero
Midstream Partners LP
Antero Midstream, LLC
535 White Oaks Blvd
Bridgeport, WV 26330
Office 304.842.4100
Fax 304.842.4102

October 20, 2017

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
118 East Court Street, Room 102
West Union, WV 26456

Mr. Eidel:

Antero Midstream LLC would like to submit a Doddridge County Floodplain permit application for our *Sherwood to Smithburg Extension Pipeline* project. Our project is located in Doddridge County beginning at coordinates 39.275897N, 80.716342W, and continues to coordinates 39.268622N, 80.731367W. Per the FIRM Map #54017C0140C, this location is in the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- No-Rise Certificate
- WV Flood Tool Map
- FIRM Maps
- Design Plans

If you have any questions please feel free to contact me at (304) 842-4008.

Thank you in advance for your consideration.

Sincerely,



Rachel McKinney
Environmental Specialist II
Antero Resources Corporation

Enclosures



Permit#

17-492

Project Name:

Sherwood to
Smithburg Pipeline
EXTENSION

Permittees Name:

Antero

Doddridge County, WV

Floodplain Development Permit Application

This document is to be used for projects that impact/potentially impact the FEMA—designated floodplain and/or floodway of Doddridge County, WV pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance.

SECTION 1: GENERAL PROVISIONS (APPLICANT TO READ AND SIGN)

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Compliance is Issued.
5. The permit will expire if no work is commenced within six months of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
7. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
8. I THE APPLICANT CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

APPLICANT'S SIGNATURE

Brian Summers

DATE

10-25-17

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Applicant Information:

Please provide all pertinent data.

Applicant Information		
Responsible Company Name: Antero Midstream LLC		
Corporate Mailing Address: 1615 Wynkoop Street		
City: Denver	State: CO	Zip: 80202
Corporate Point of Contact (POC):		
Corporate POC Title:		
Corporate POC Primary Phone:		
Corporate POC Primary Email:		
Corporate FEIN:	Corporate DUNS:	
Corporate Website: www.anteroresources.com		
Local Mailing Address: 535 White Oaks Blvd		
City: Bridgeport	State: WV	Zip: 26330
Local Project Manager (PM):		
Local PM Primary Phone:		
Local PM Secondary Phone:		
Local PM Primary Email:		
Person Filing Application: Rachel McKinney		
Applicant Title: Environmental Specialist II		
Applicant Primary Phone: (304) 842-4008		
Applicant Secondary Phone: (304) 641-2396		
Applicant Primary Email: rmckinney@anteroresources.com		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Proposed Development:

Please check all elements of the proposed project that apply.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

<u>ACTIVITY</u>	<u>STRUCTURAL TYPE</u>
<input type="checkbox"/> New Structure	<input type="checkbox"/> Residential (1 – 4 Family)
<input type="checkbox"/> Addition	<input type="checkbox"/> Residential (more than 4 Family)
<input type="checkbox"/> Alteration	<input type="checkbox"/> Non-residential (floodproofing)
<input type="checkbox"/> Relocation	<input type="checkbox"/> Combined Use (res. & com.)
<input type="checkbox"/> Demolition	<input type="checkbox"/> Replacement
<input type="checkbox"/> Manufactured/Mobil Home	

B. OTHER DEVELOPMENT ACTIVITIES:

- Fill Mining Drilling Pipelining
- Grading
- Excavation (except for STRUCTURAL DEVELOPMENT checked above)
- Watercourse Alteration (including dredging and channel modification)
- Drainage Improvements (including culvert work)
- Road, Street, or Bridge Construction
- Subdivision (including new expansion)
- Individual Water or Sewer System
- Other (please specify)

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 1 of 6

Site/Property Information:		
Legal Description: MEATHOUSE FK 136.5 AC		
Physical Address/911 Address: STATE ROUTE 18		
Decimal Latitude/Longitude: 39.268408, -80.734558		
DMS Latitude/Longitude: 39°16'06.27"N, 80°44'04.41"W		
District: 06	Map: 1	Parcel: 6
Land Book Description:		
Deed Book Reference: Deed Book 372, Page 121		
Tax Map Reference: 09 06 0001 0006 0000 0000		
Existing Buildings/Use of Property: House, Outbuilding, Wooded		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 2 of 6

Site/Property Information:		
Legal Description: MEATHOUSE 57.7 AC		
Physical Address/911 Address: OFF RT 18-SNOWBIRD RD		
Decimal Latitude/Longitude: 39.272569, -80.732536		
DMS Latitude/Longitude: 39°16'21.25"N, 80°43'57.13"W		
District: 06	Map: 1	Parcel: 2
Land Book Description:		
Deed Book Reference: Deed Book 163, Page 687		
Tax Map Reference: 09 06 0001 0002 0000 0000		
Existing Buildings/Use of Property: House, Out Buildings, Wooded		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 3 of 6

Site/Property Information:		
Legal Description: MEATHOUSE THREE TRS 95.12 AC		
Physical Address/911 Address: OFF RT 18-SNOWBIRD RD		
Decimal Latitude/Longitude: 39.274194, -80.724228		
DMS Latitude/Longitude: 39°16'27.10"N, 80°43'27.22"W		
District: 06	Map: 1	Parcel: 3
Land Book Description:		
Deed Book Reference: Deed Book 0165, Page 0010		
Tax Map Reference: 09 06 0001 0003 0000 0000		
Existing Buildings/Use of Property: Wooded		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 4 of 6

Site/Property Information:		
Legal Description: MEATHOUSE 43 AC		
Physical Address/911 Address: OFF RT 18-SNOWBIRD RD		
Decimal Latitude/Longitude: 39.274683, -80.719739		
DMS Latitude/Longitude: 39°16'28.86"N, 80°43'11.06"W		
District: 06	Map: 1	Parcel: 4
Land Book Description:		
Deed Book Reference: Deed Book 0165, Page 0010		
Tax Map Reference: 09 06 0001 0004 0000 0000		
Existing Buildings/Use of Property: Wooded		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 5 of 6

Site/Property Information:		
Legal Description: MI CREEK 148 AC		
Physical Address/911 Address: ROUTE 16		
Decimal Latitude/Longitude: 39.277306, -80.723269		
DMS Latitude/Longitude: 39°16'38.30"N 80°43'23.77"W		
District: 08	Map: 16	Parcel: 15.2
Land Book Description:		
Deed Book Reference: DEED BOOK 310, PAGE 243		
Tax Map Reference: 09 08 0016 0015 0002 0000		
Existing Buildings/Use of Property: WOODED		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 6 of 6

Site/Property Information:		
Legal Description: DOUGLAS CAMP 107 AC		
Physical Address/911 Address: OFF RT 18/5 DOUGLAS RUN		
Decimal Latitude/Longitude: 39.275894, -80.716344		
DMS Latitude/Longitude: 39°16'33.22"N, 80°42'58.84"W		
District: 06	Map: 2	Parcel: 1
Land Book Description:		
Deed Book Reference: DEED BOOK 214 PAGE 644		
Tax Map Reference: 09 06 0002 0001 0000 0000		
Existing Buildings/Use of Property: Wooded		

Floodplain Location Data: (to be completed by Floodplain Manager or designee)			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: <u> 1 </u> of <u> 6 </u>
--

Property Owner Data:		
Name of Primary Owner (PO): COLUMBIA GAS TRANSMISSION, LLC		
PO Address: 1700 MACCORKLE AVE SE		
City: CHARLESTON	State: WV	Zip: 25314
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: (As Applicable)		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: <u> 2 </u> of <u> 6 </u>
--

Property Owner Data:		
Name of Primary Owner (PO): DODDRIDGE CO COURT		
PO Address: 108 COURT ST #4		
City: WEST UNION	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: (As Applicable)		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 3 & 4 of 6

Property Owner Data:		
Name of Primary Owner (PO): RILL, ELWOOD P. & ELIZABETH		
PO Address: 4619 GLENVILLE RD		
City: GLEN ROCK	State: PA	Zip: 17327
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: (As Applicable)		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 5 of 6

Property Owner Data:		
Name of Primary Owner (PO): MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC		
PO Address: 1515 ARAPAHOE ST TOWER 1 STE 1		
City: DENVER	State: CO	Zip: 80202
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: (As Applicable)		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: <u> 6 </u> of <u> 6 </u>
--

Property Owner Data:		
Name of Primary Owner (PO): LAW, RONALD L		
PO Address: 472 TENT CHURCH RD		
City: COLLIERS	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: (As Applicable)		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Contractor Data:

Please provide all pertinent data for contractors and sub---contractors that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: ____ of ____

Contractor/Sub-Contractor (C/SC) Information:		
C/SC Company Name:		
C/SC WV License Number:		
C/SC FEIN:	C/SC DUNS:	
Local C/SC Point of Contact (POC):		
Local C/SC POC Title:		
C/SC Mailing Address:		
City:	State:	Zip-Code:
Local C/SC Office Phone:		
Local C/SC POC Phone:		
Local C/SC POC E-Mail:		

Engineer Firm Information:		
Engineer Firm Name:		
Engineer WV License Number:		
Engineer Firm FEIN:	Engineer Firm DUNS:	
Engineer Firm Primary Point of Contact (POC):		
Engineer Firm Primary POC Title:		
Engineer Firm Mailing Address:		
City:	State:	Zip-Code:
Engineer Firm Office Phone:		
Engineer Firm Primary POC Phone:		
Engineer Firm Primary POC E-Mail:		

Adjacent and/or Affected Landowners Data

Please provide data for all adjacent and/or affected surface owners (both up and down stream) whose property may be impacted by proposed development as demonstrated by a floodplain study or survey. Use additional copies of this page as needed.

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): SUTTON, JEREMY W & AMANDA L		
Physical Address: PO BOX 57		
City: SMITHBURG	State: WV	Zip: 26436
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO):		
Physical Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): BOWYER, DAVID E		
Physical Address: 12088 MIDDLE ISLAND RD		
City: ALMA	State: WV	Zip: 26320
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): HAMILTON, WILLIAM M AND		
Physical Address: 1648 SNOWBIRD RD		
City: WEST UNION	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Site Plan

A Site Plan is an accurate and detailed map of the proposed development for this project. It shows the size, shape, location and special features of the project property, and the size and location of any development planned to the property, especially as that development will impact the floodplain and/or floodway. Site plans show what currently exists on the project property, and any changes or improvements you are proposing to make. **A certified and licensed engineering firm should complete site plans.**

A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:

1. Legal description of the parcel, north arrow and scale
2. All property lines and their dimensions
3. Names of adjacent roads, location of driveways
4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on most updated FIRM.
5. Location, size, shape of all buildings, existing and proposed, with elevation of lowest floor indicated.
6. Location and dimensions of existing or proposed on-site sewage systems.
7. Location of all propane tanks, fuel tanks or other liquid storage tanks whether above ground or below ground level.
8. Location and dimensions of any proposed pipeline placement(s) into floodplain/floodway.
9. Location and dimensions of any roadway development into floodplain/floodway. *(Includes initial development access roads)*
10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
12. Location of any existing utilities and/or proposed utility placement and/or displacement.
13. Location, dimensions and depth of any existing or proposed fill on site.
14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE:** All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevation.

Applicant

Please read print name, sign and date below:

- I certify that I am authorized to submit this application for the primary project developer.
- I certify that the information included in this application is to the best of my knowledge true and complete.
- I certify that all required Federal, State, and local permits required by law and/or ordinance for the above described development of this project have been properly attained, are current and valid, and must be presented with this application before a Doddridge County Floodplain Permit may be issued.
- I understand that if in the course of the development project additional permits become required that were not needed during the initial proposal, the primary developer must notify the Doddridge County Floodplain Manager within 48 hours of such need, and that a "Stop Work" order may be issued for all project work directly impacting the floodplain or floodway, until such time the required additional permits are acquired.
- I understand that once the floodplain permit is submitted, the application will be entered into official public record at the next regularly scheduled Doddridge County Commission meeting after the date of submittal.
- I understand that from the date of submittal of the fully completed permit application, the Doddridge County Floodplain Manager has ninety (90) days to make a determination to either grant or deny said permit application. During this approval period, the Doddridge County Floodplain Manager may, at his or her discretion, conduct a review and/or additional study of provided documentation by means of an independent engineering firm. All costs associated with said review and/or study must be reimbursed to the County before issuance of approved permit.
- I understand that during the approval period, the Doddridge County Floodplain Manager or designee may at his or her discretion conduct site visits and document conditions of proposed development pursuant to the permit application.
- I understand that once the Floodplain Permit is granted, the permit will be entered into official public record at the next scheduled Doddridge County Commission meeting after the date of issuance. Appeals to the permit may be made no later than twenty (20) days after said issuance. If a valid appeal is submitted, as determined by the Doddridge County Floodplain Manager, a "Stop Work" order will be issued for all project development directly involving the floodplain or floodway. A public hearing by the Doddridge County Appeals Board will be scheduled no less than ten (10) days after the next regularly scheduled Doddridge County Commission meeting.
- I understand that all decisions of the Doddridge County Appeals Board shall be final.
- I understand issuance of a Floodplain Permit authorizes me to proceed with construction as proposed. A Certificate of Compliance is required upon substantial completion of the project.
- In signing this application, the primary developer hereby grants the Doddridge County Floodplain Manager or designee the right to enter onto the above-described location to inspect the development work proposed, in progress, and/or completed.
- I understand that if I do not follow exactly the site-plan submitted and approved by this permit that a "Stop Work" order may be issued by the Wirt County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: _____

Brian Guarneris

Date: 10-25-17

Applicant Printed Name: _____

Brian Guarneris



October 18, 2017

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
118 East Court Street, Room 102
West Union, WV 26456

Subject: Antero Midstream, LLC.
Sherwood to Smithburg Extension Pipeline (AFE #A05924)
No-Rise Certificate
Doddridge County, West Virginia
CEC Project 174-537

Civil & Environmental Consultants, Inc. (CEC) is pleased to evaluate the potential floodplain impacts for the above referenced project on behalf of Antero Midstream, LLC., 535 White Oaks Blvd, Bridgeport, WV 26330. Antero Midstream, LLC. proposes to install a 30" High Pressure Steel Gas Line. A portion of the proposed project is located within the Meathouse Fork Zone AE Flood Hazard area, according to the Flood Insurance Rate Map (FIRM) for Doddridge County, map panel 54017C0140C with a revised date of October 4, 2011. The proposed work that will take place in the floodplain includes the installation of permanent water bars and the installation of the pipeline by HDD bore method. The material needed to construct the permanent water bars will be excavated from the up-gradient side of the berm. Therefore, a net loss of floodplain storage is not expected. One HDD bore pit will be located in the floodplain; however, this impact will be temporary and the ground will be restored upon completion of the bore. All other disturbed areas will be returned to existing conditions at the conclusion of the work. As a result, the project will not result in a decrease of the available floodplain storage area and will not adversely affect the existing base flood elevation of Meathouse Fork.

This no-rise certificate is provided in support of the floodplain development permit application. Your time and effort in reviewing this floodplain development permit application is appreciated. Please feel free to contact me at 304-933-3119 or via e-mail at adarnell@cecinc.com or contact Mrs. Rachel McKinney at 304-842-4008 or via e-mail at rmckinney@anteroresources.com if you have questions or need additional information.

Respectfully submitted,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Andrew P. Darnell, E.I.
Assistant Project Manager

Joshua N. Diaz, P.E.
Senior Project Manager



WV Flood Map



User Notes:
 Antero Midstream LLC
 AFE# A05924
 SHERWOOD TO SMITHBURG EXT
 Pipeline

- Flood Hazard Zone
- ⊙ Flood Point of Interest

Disclaimer:

The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov. *WV Flood Tool* (<http://www.MapWV.gov/flood>) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.

Map created on October 12, 2017

Flood Hazard Area:
 Flood Hazard Area: Location is NOT WITHIN identified flood hazard area, but within 75 feet of an

FEMA Issued Flood Map: 54017C0140C

Watershed (HUC8): Little Musringum-Middle Island (5

Elevation: About 874 ft

Location (long, lat): (80.731370 W, 39.268626 N)

Location (UTM 17N): (523173, 4346621)

Contacts: Doddridge

CRS Information: N/A

Parcel Number: 09-06-0001-0006-0000

WV Flood Map



— Cross Section (XS) Lines
 ~ Base Flood Elevation (BFE) Lines

~ Rule_1
 Floodway
Flood Hazard Zone
 Approximate Study (Zone A)
 Detailed Study (AE, AH, AO)
 High : 134.442
 Low : 6.10352e-005

DFIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

Location of flood information
 User Notes:

Map created on October 26, 2017

Flood Hazard Area:
 Flood Hazard Area: Location is WITHIN the FEMA 100-year floodplain.

Flood Hazard Zone: AE
Stream: Meathouse Fork
FEMA Issued Flood Map: 54017C0140C
Watershed (HUC8): Little Musringum-Middle Island (5030)
Advisory Flood Height: N/A
Water Depth: About 20.0 ft (Source: HAZUS)
Elevation: About 794 ft
Location (long, lat): (80.731811 W, 39.267948 N)
Location (UTM 17N): (523135, 4346545)
Contacts: Doddridge
CRS Information: N/A
Flood Profile: 54017_016
HEC-RAS Model: N/A
Parcel Number: No Parcel

Disclaimer:
 The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov.
 WV Flood Tool (<http://www.MapWV.gov/flood>) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.



MAP SCALE 1" = 1000'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0140C

FIRM

FLOOD INSURANCE RATE MAP
 DODDRIDGE COUNTY,
 WEST VIRGINIA
 AND INCORPORATED AREAS

PANEL 140 OF 325
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0140	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
 54017C0140C
 MAP REVISED
 OCTOBER 4, 2011

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ANTERO MIDSTREAM LLC

ISSUED FOR PERMITTING PLANS FOR THE PROPOSED SMITHBURG TO MXP 30" RESIDUE PIPELINE

AFE #A05924 101-050-6467

DODDRIDGE COUNTY, WEST VIRGINIA SEPTEMBER 2017

AERIAL MAP



VICINITY MAP
FULL SCALE: 1"=3,000'
HALF SCALE: 1"=6,000'



PHONE: (303) 357-7310 | FAX: (303) 357-7315
1615 WYNKOOP STREET
DENVER, CO 80202

ENGINEER OF RECORD



PHONE: (304) 624-4108 | FAX: (304) 624-7831
600 WHITE OAKS BLVD., P.O. BOX 940
BRIDGEPORT, WV 26330

EXISTING INFORMATION SOURCES

BASE CONTOUR DATA PROVIDED BY THE WEST VIRGINIA OFFICE OF GIS AT TWO FOOT CONTOUR INTERVALS.

SUPPLEMENTAL SPOT ELEVATIONS AND ALIGNMENT PROVIDED BY:

THE THRASHER GROUP
600 WHITE OAKS BLVD., P.O. BOX 940
BRIDGEPORT, WV 26330

BENCHMARK:
HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, US SURVEY FOOT
VERTICAL - NAVD 88 (GEOID12B), US SURVEY FOOT

ROAD DESIGNATIONS OBTAINED FROM WV-DOH
(<http://www.transportation.wv.gov>)

PLAN REPRODUCTION WARNING

THESE PLANS ARE INTENDED TO BE PLOTTED ON ANSI D (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

THESE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THESE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

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DANIEL E. FERRELL, WV P.E. # 13462

ISSUED FOR PERMITS DATE: _____ BY: _____

ISSUED FOR CONSTRUCTION DATE: _____ BY: _____

LAYOUT TAB: COVER USER: robert.j.lucsko
CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-SURVEY\PLANS\COVER SHEET.dwg PLOT DATE/TIME: 9/5/2017 10:14 AM

WVDOH GENERAL NOTES

- ALL CONSTRUCTION ON THE DIVISION OF HIGHWAYS RIGHT OF WAY WILL CONFORM TO THE FOLLOWING:
- THE FOLLOWING NOTES APPLY TO ALL PROJECT PLAN SHEETS:
- ALL METER SETTINGS ACROSS PAVED ROADS SHALL BE BORED OR MOLED, UNLESS OPEN CUT HAS BEEN APPROVED BY W.V.D.O.H. AND SPECIFICALLY INDICATED ON PLANS.
 - NOTIFICATION OF PROPOSED EXCAVATION, DEMOLITION OR ANY OTHER EARTH DISTURBING ACTIVITIES ARE REQUIRED TO BE PLACED TO MISS UTILITY OF WEST VIRGINIA (1-800-245-4848) NOT LESS THAN FORTY EIGHT (48) BUSINESS HOURS BEFORE ANY SUCH WORK IS TO BEGIN.
 - BEDDING SHALL BE PLACED ON ASPHALT SURFACE TO PROTECT THE PAVEMENT WHEN A TRENCHER OR TRACKED VEHICLE IS USED.
 - THE WEST VIRGINIA DIVISION OF HIGHWAYS PUBLICATIONS "STANDARD SPECIFICATIONS ROADS AND BRIDGES" AND "ACCOMMODATIONS OF UTILITIES ON HIGHWAY RIGHT OF WAY" LATEST EDITION ARE PART OF THE PROJECT SPECIFICATIONS AND WILL BE ADHERED TO BY THE CONTRACTOR.
 - ALL DAMAGE TO ROAD SURFACE SHALL BE REPAIRED ACCORDING TO THE WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS AND DETAILS.
 - ALL EXISTING DUMP ROCK OR RIP RAP DITCHES DISTURBED BY THE UTILITY LINE CONTRACTOR SHALL BE RESTORED WITH THE SAME SIZE, GRADE AND QUALITY OF ROCK AFTER THE UTILITY LINE HAS BEEN INSTALLED. NEW DUMP ROCK (RIP RAP) IS TO BE PLACED IN ALL LOCATIONS WHERE THE DITCH LINE GRADE IS GREATER THAN 5% AND THERE IS NO EXISTING RIP RAP.
 - TRAFFIC CONTROL SHALL CONFORM TO THE W.V.D.O.H. PUBLICATION "TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE" OPERATION LATEST EDITION.
 - ALL BACKFILL MATERIAL AND COMPACTION REQUIREMENT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS IN THE ACCOMMODATION OF UTILITIES ON HIGHWAY RIGHT OF WAY AND ADJUSTMENT AND RELOCATION OF UTILITY FACILITIES ON HIGHWAY PROJECTS AND SUBJECT TO D.O.H. APPROVAL. EVIDENCE OF PROPER COMPACTION BY TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TESTING SHALL BE ONE (1) PER DAY OR EVERY 500 LINEAL FEET OR AS DETERMINED BY THE DISTRICT MANAGER (ENGINEER) OR HIS AUTHORIZED REPRESENTATIVE.
 - UTILITY LINES OR OTHER LINES SHALL BE PLACED EITHER AROUND, UNDER OR OVER DRAINAGE CULVERTS AS SHOWN ON PLANS.
 - AGGREGATE SHOULDER STONE IS TO BE PLACED ON THE SHOULDER AT A THICKNESS EQUAL TO 6" OR ITS ORIGINAL THICKNESS WHICHEVER IS GREATER. PAVED SHOULDERS WILL BE PAVED.
 - MAGNETIC MARKING TAPE SHALL BE INSTALLED AT A DEPTH OF 12" TO 18" BELOW THE SURFACE AND DIRECTLY ABOVE ALL LINES OR PIPE.
 - REPAIR TO DRIVEWAYS ON W.V.D.O.H. RIGHT OF WAYS SHALL CONFORM TO THE APPROPRIATE W.V.D.O.H. TYPICAL REPAIR DETAIL.
 - CLEANUP WILL BE ACCOMPLISHED DAILY. RIGHT OF WAYS SHALL CONFORM TO THE APPROPRIATE W.V.D.O.H. REPAIR. ALL CULVERTS AND DRAINAGE DITCHES SHALL BE OPEN AND MAINTAINED DURING CONSTRUCTION. SHOULDERS WILL BE RESTORED AND STABILIZED WITH STONE DAILY WITH APPROPRIATE STONE AT THE DISCRETION OF W.V.D.O.H.
 - ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED WITHIN SEVEN DAYS OF COMPLETION OF BACK FILL OPERATION.
 - NO EXCESS EXCAVATION MATERIAL SHALL BE WASTED ON W.V.D.O.H. RIGHT OF WAYS WITHOUT THE AGREEMENT OF THE W.V.D.O.H.
 - THE W.V.D.O.H. RESERVES THE RIGHT TO RELOCATE WATERLINES, FIRE HYDRANTS, AND VALVES AS DEEMED NECESSARY.
 - THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY COMPANIES, PRIOR TO CONSTRUCTION TO OBTAIN UTILITY LOCATIONS AND PERFORMING EXPLORATORY WORK TO DETERMINE SUBSURFACE MATERIALS AND STRUCTURES THAT MAY AFFECT ITS WORK.
 - PRIOR TO THE START OF ANY WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY, THE CONTRACTOR SHALL GIVE THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION 48 HOURS NOTICE.
 - THE CONTRACTOR IS RESPONSIBLE FOR ANY OFFSITE DISPOSAL REQUIRED. DISPOSAL SHALL BE TO AN ACCEPTABLE LEGAL SITE. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL AT DISPOSAL SITES.
 - ALL ELEVATION GRADES AND DISTANCES SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE PRIOR TO CONSTRUCTION.
 - ALL CONSTRUCTION SHALL MAINTAIN 5' FROM EDGE OF PAVEMENT OR BOTTOM OF DITCH UNLESS NO OTHER PRACTICAL MEANS OF CONSTRUCTION EXISTS.
 - PERFORM ACCEPTABLE REPAIR OF ANY AND ALL SUB-BASE FAILURES THAT ARE CAUSED BY THE CONTRACTOR'S OPERATION ON A DAILY BASIS.
 - PERFORM TOTAL REPAIR AND/OR REPLACEMENT OF ANY DAMAGED ASPHALT SURFACE AS DETERMINED BY THE W.V.D.O.H REPRESENTATIVE.
 - PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL MAKE A COMPLETE VIDEO SHOWING THE ROAD SURFACE OF THE ENTIRE PROJECT OF ROADS TO BE UTILIZED IN THE CONSTRUCTION OF THE PROJECT AND PRESENT IT TO UTILITY SUPERVISOR W.V.D.O.H.
 - REMOVE DITCH-LINE OBSTACLES AND/OR RECONSTRUCTION OF THE DITCH-LINE.
 - IN THE CASE OF MANHOLES OR VALVES IF AT ALL POSSIBLE SHALL BE PLACED OUTSIDE THE ROADWAY, SHOULDER, OR DITCH LINE IF PLACED IN THE SHOULDER THERE IS TO BE A MINIMUM OF 6 INCHES OF COVER IN THE DITCH LINE THERE IS TO BE 12 INCHES OF COVER BETWEEN THE MANHOLE AND THE INVERT OF THE DITCH.
 - ANY MANHOLES OR VALVES OR VALVE BOXES PLACED IN THE ROADWAY WILL BE ON THE SAME PLANE AS THE ROADWAY AND SET FLUSH WITH ROADWAY.
 - ANY ROADS REQUIRING AN H.L.B.C. OVERLAY, FULL WIDTH OR PARTIAL, SHALL HAVE SHOULDER STONE FROM AN APPROVED SOURCE PLACED AS PER D.O.H. SPECIFICATIONS.
 - THE DEPARTMENT OF HIGHWAYS REQUIRES THERE BE NO WORK WITHIN THE DEPARTMENT'S RIGHT-OF-WAY DURING SNOW AND ICE REMOVAL. THERE MAY BE EXCEPTIONS FOR EMERGENCY AND CASE BY CASE SITUATIONS WITH NOTIFICATION TO THE DEPARTMENT.

UTILITY AGENCIES SERVING PROJECT AREA

MISS UTILITY
1-800-245-4848

WEST VIRGINIA DIVISION OF HIGHWAYS
WVDOH DIST #4
P.O. BOX 4220
CLARKSBURG, WV 26301-4220
(304) 842-1576
(304) 842-1507 FAX
DAVE SCHEARER - UTILITY SUPERVISOR - CROSSINGS
DENISE RONCONE - PERMIT SUPERVISOR - TEMP. ACCESSES

GAS
DOMINION TRANSMISSION INC.
1-888-264-8240

ANTERO RESOURCES CORPORATION
1-303-357-7310

ENERGY CORPORATION OF AMERICA (ECA)
1-304-925-6100
(RICK JETT) 1-304-678-7446

KEY OIL COMPANY
1-304-269-7102
(GREG KELLY) 1-304-588-7610

RITCHEE PETROLEUM
1-304-659-2123
(JUSTIN SMITH) 1-304-266-6332

ALLIANCE PETROLEUM CORPORATION (APC)
1-330-493-0440
(GENE DILLON) 1-304-629-9120

POWER
MON POWER
1-800-686-0022

CABLE
AT&T
1-304-216-4100

SEWER
NO PUBLIC SEWER IN PROJECT AREA

WATER
NO PUBLIC WATER IN PROJECT AREA

TELEPHONE
VERIZON TELECOMMUNICATIONS
1-800-275-2355

RESPONSE TEAMS:
NATIONAL RESPONSE CENTER FOR REPORTING CHEMICAL OR OIL SPILLS
1-800-424-8802

STATE EMERGENCY SPILL NOTIFICATION
1-800-642-3074

EMERGENCY AMBULANCE, FIRE, LAW ENFORCEMENT
911

DRAWING INDEX

01	COVER	COVER SHEET
02	GNOTS	GENERAL NOTES SHEET
03	SPECS	GENERAL CONSTRUCTION SPECS SHEET
04	INDEX	INDEX SHEET
05-08	PLAN1-PLAN4	PROPOSED ALIGNMENT PLAN AND PROFILE SHEETS
09	AR1	ACCESS ROAD SHEET
10	HDD BORE	PROPOSED HDD BORE SHEET
11	HTP	HYDROSTATIC TEST PROFILE SHEET
12	S&WC1	STREAM & WETLAND CROSSING SHEET
13-22	ESCP1-ESCP10	ESCP DETAIL SHEETS

GENERAL NOTES

- EXISTING UTILITIES SHOWN ON PLANS WHERE EVIDENCE HAS BEEN FOUND OR PROVIDED BY LOCAL UTILITIES. EXACT DEPTH AND LOCATION OF UTILITY LINES NOT KNOWN. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO CROSSING BY CONTACTING MISS UTILITY AT 1-800-245-4848 AND LOCAL UTILITY COMPANIES AS LISTED AND/OR NOT LISTED ON THIS SHEET. CONTRACTOR TO LOCATE WATER AND UTILITY SERVICES BEFORE BORING AND JACKING.
- IN THE EVENT AN ERROR WITH THE PLANS SEEMS APPARENT, THE MATTER MUST BE TAKEN UP WITH THE ENGINEER FOR REVIEW BEFORE PROCEEDING WITH CONSTRUCTION.
- ALL PERMITS MUST BE SECURED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE ALL STREAM CROSSING INSTALLATIONS PROPOSED SO NOT TO DELAY THE CONSTRUCTION PROCESS. STREAM CROSSINGS ARE TO BE CONSTRUCTED USING AN OPEN CUT CROSSING METHOD UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- ALL WVDOH ROAD CROSSINGS TO BE CONSTRUCTED USING AN OPEN CUT CROSSING METHOD UNLESS OTHERWISE SPECIFIED ON THE PLANS. WVDOH TO BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY WORK WITHIN WVDOH R/W.
- ALL CONSTRUCTION TO BE DONE IN THE PROPOSED PIPELINE LIMITS OF DISTURBANCE AS SHOWN.
- ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE STANDARDS AND SPECIFICATIONS PROVIDED IN A SEPARATE BOUND VOLUME.
- CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE TYPES AND O.D. PRIOR TO CONNECTION.
- PROPERTY LINES SHOWN ON PLANS WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.

EROSION & SEDIMENT CONTROL NOTES

- ALL EROSION AND SEDIMENT MEASURES TO BE IN ACCORDANCE WITH WEST VIRGINIA ONLINE BMP MANUAL FOR STANDARD GUIDELINES AND SPECIFICATIONS AVAILABLE AT:
[HTTPS://APPS.DEP.WV.GOV/DWMM/STORMWATER/BMP/INDEX.HTML](https://apps.dep.wv.gov/dwmm/stormwater/bmp/index.html)
- EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
- EXPOSED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FROM THE EROSION FORCES OF RAINDROPS, FLOWING WATER, AND WIND.
- CLEARING AND GRUBBING IS TO OCCUR IN THE NOTED LIMITS OF DISTURBANCE (L.O.D.) ONLY.
- ALL GRADED AREAS THAT ARE AT FINAL GRADE MUST BE SEEDED AND MULCHED WITHIN 7 DAYS AND AREAS THAT WILL NOT BE WORKED AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN 7 DAYS.
- AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
- TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH BMPs.
- EROSION AND SEDIMENT CONTROL BMPs SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES PER 24 HOUR PERIOD. ANY NECESSARY OR REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY.

CONSTRUCTION SEQUENCE OF EVENTS

- CALL MISS UTILITY (1-800-245-4848)
- INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES.
- CONSTRUCTION OF PIPELINE WITH RESTORATIONS.
- TESTING OF PIPELINE AND APPURTENANCES.
- PROJECT CLOSE-OUT, PUNCH LIST, CLEAN UP, REPAIRS, FINAL SEEDING AND MULCHING, ETC...

LEGEND / ABBREVIATIONS

- = EXISTING PIPELINE VENT
- = EXISTING WELL (AS NOTED)
- = EXISTING GAS METER
- = EXISTING RECTIFIERS
- = EXISTING PIPELINE MARKER
- = EXISTING GAS VALVE
- = EXISTING MONUMENT FOUND (AS NOTED)
- = EXISTING UTILITY POLE
- = EXISTING PIPELINE
- = EXISTING WATER LINE
- = EXISTING FENCE
- = EXISTING OVERHEAD UTILITY
- = EXISTING UNDERGROUND UTILITY
- = PROPERTY LINE
- = DOH RIGHT-OF-WAY LINE
- = PROPOSED PERMANENT RIGHT-OF-WAY
- = PROPOSED CONSTRUCTION RIGHT-OF-WAY
- = COMPRESSOR LIMITS-OF-DISTURBANCE
- = PROPOSED ANTERO BASELINE
- = PROPOSED ANTERO GAS LINE
- = PROPOSED ANTERO WATER LINE
- = EXISTING GROUND PROFILE
- = PROPOSED PIPELINE PROFILE
- = CONTOUR
- = PROJECT AREA-OF-INTEREST
- = PROPOSED ORANGE SAFETY FENCE
- = PROPOSED SILT SAVER BSRF-P1
- = PROPOSED SILT SAVER BSRF-P2
- = PROPOSED COMPOST FILTER SOCK
- = PROPOSED PERMANENT WATER BAR (PLAN)
- = DELINEATED STREAMS
- = DELINEATED STREAMS (PROPOSED PERMANENT FILL)
- = DELINEATED WETLANDS
- = DELINEATED WETLANDS (PROPOSED PERMANENT FILL)
- = DELINEATED GROUNDWATER SEEP/SPRING
- = USFWS PROTECTIVE AQUATIC BUFFER
- = ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- = ADDITIONAL TEMPORARY WORKSPACE
- = STONE CONSTRUCTION ENTRANCE
- = TEMPORARY TIMBERMAT CROSSING
- = PROPOSED ACCESS ROAD
- = PIPELINE MILE POST
- = PROPOSED PERMANENT WATER BAR (PROFILE)
- = PROPOSED EARTH TRENCH BREAKER (PROFILE)
- = PROPOSED TRENCH PLUG DRAIN (PROFILE)
- = PROPOSED GAS LINE MARKER
- = PROPOSED TEST STATION
- = PROPOSED ANODE
- = PROPOSED RECTIFIER
- = PROPOSED INSULATION KIT
- = PROPOSED AC COUPON
- = PARCEL IDENTIFICATION

PROPOSED CONSTRUCTION RIGHT-OF-WAY

- CONSTRUCTION R/W LIMITS-OF-DISTURBANCE
- C.L. PROPOSED CORRIDOR
- CONSTRUCTION R/W LIMITS-OF-DISTURBANCE

*LEGEND IS TYPICAL. NOT ALL ITEMS IN LEGEND APPEAR IN DRAWING

LAYOUT TAB: GNOTS CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-SURVEY\PLANS\GENERAL NOTES SHEETS.dwg USER: robert.j.lucro PLOT DATE/TIME: 9/8/2017 1:53 PM



ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE	BY
①	30" STEEL API 5L PSL-2, X-70, 0.625" WALL, FBE COATED PIPE	4,594 LF				
②	30" STEEL API 5L PSL-2, X-70, 0.625" WALL, ARO COATED PIPE	2,345 LF				
RECP	ROLLED EROSION CONTROL PRODUCT	523,148 SF				
SS1	SILT SAVER BSRF-P1	417 LF				
SS2	SILT SAVER BSRF-P2	9,474 LF				
TB	EARTH TRENCH BREAKERS	17				
WB	PERMANENT WATERBARS	11				
GM	GAS LINE MARKERS	14				
TS	TEST STATIONS	7				

SUMMARY OF MATERIALS (3D)

REVISION

GENERAL INFORMATION

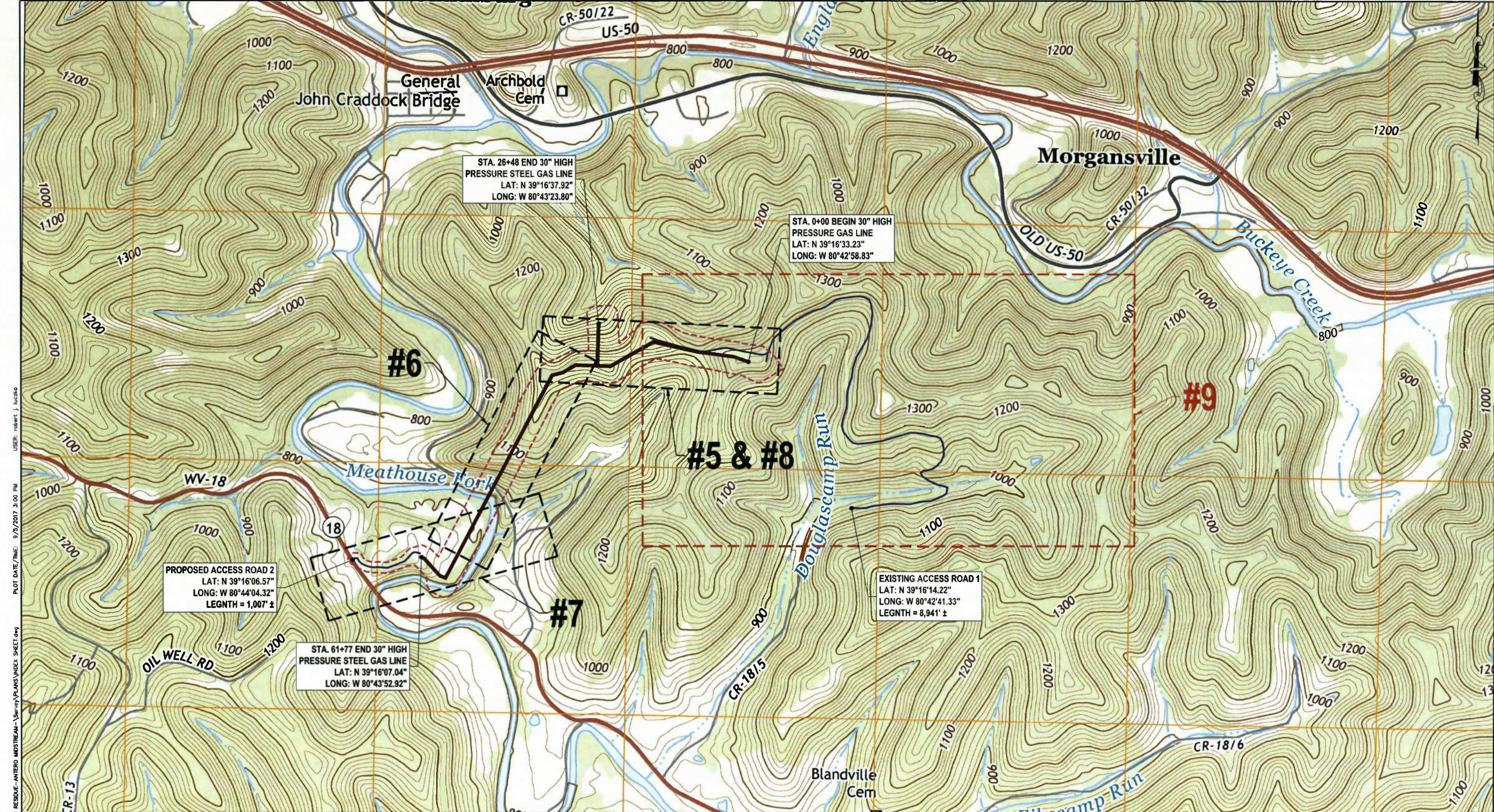
- FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
- THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.



SMITHBURG TO MXP RESIDUE PIPELINE GENERAL NOTES

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	9/8/2017 (AFE No.:	A05924
SCALE:	AS SHOWN	
DRAWN BY:	JDA, JLA (TFO)	SHEET 02
CHECKED:	AR, JRN (TFO)	
SHT. NAME:	050-6467\MXP\GNOTS	REV. 0



LAYOUT TAB: INDEX
 CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\INDEX SHEET.dwg
 USER: robert.j.lucero
 PLOT DATE/TIME: 9/5/2017 3:00 PM

THRASHER

0 600 1200
HORIZ. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

REVISION			
NO.	DESCRIPTION	DATE	BY

Antero
Midstream Partners LP

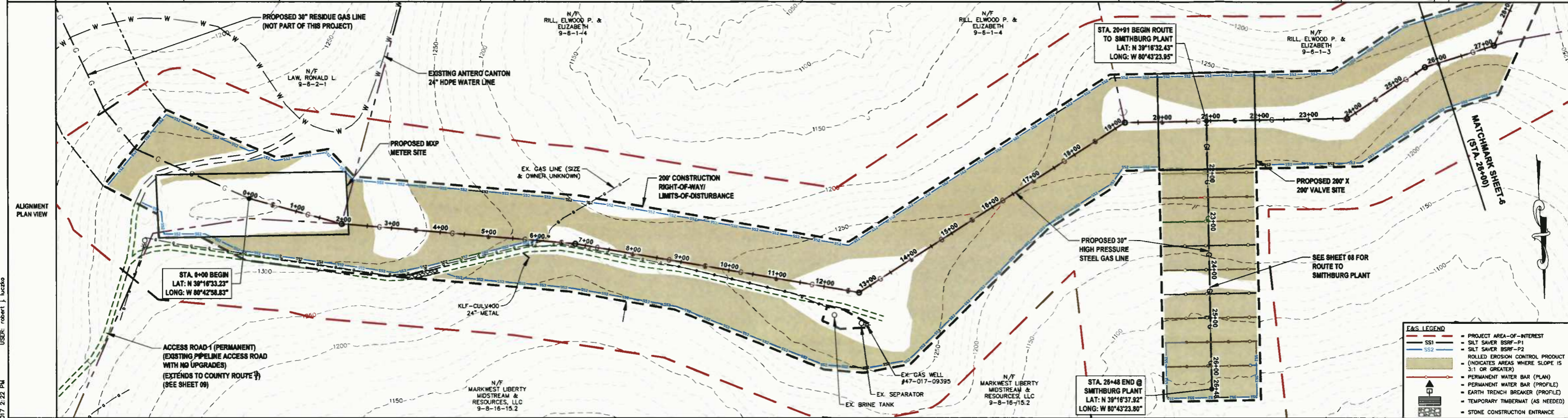
SMITHBURG TO MXP RESIDUE PIPELINE INDEX SHEET

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/5/2017 AFE No: A05924
SCALE: AS SHOWN
DRAWN BY: JLA, P.L. (TTC)
CHECKED: AR, JRI (TTC)
SHEET 04
SHT. NAME: 050-6467\MXP\INDEX REV. 0

- GENERAL INFORMATION**
- MAPPING SOURCE: SMITHBURG, WV USGS 7.5 MINUTE QUADRANGLE DATED 2014.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
 - COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
VERTICAL - NAVD 88 (GEOID128), U.S. SURVEY FOOT
 - THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"), FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

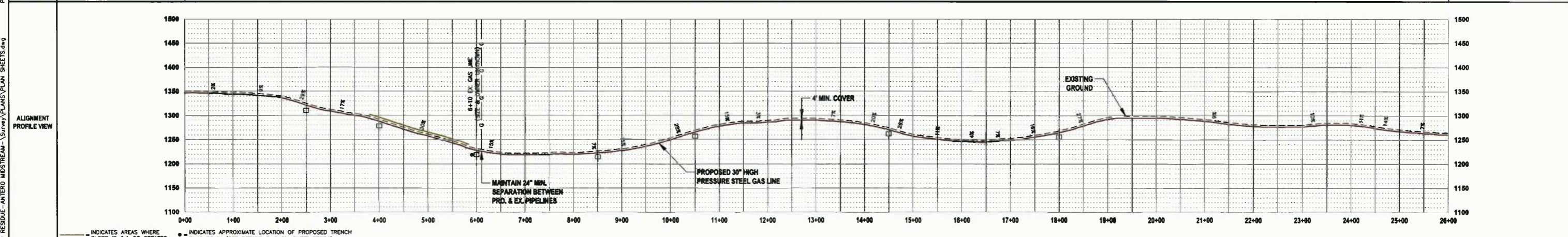
OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE	0+00	LAW, RONALD L. 9-6-2-1 HORIZ. DIST. = 197'± SLOPE DIST. = 197'±	1+97	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC 9-8-16-15.2 RILL, ELWOOD P. & ELIZABETH 9-6-1-4 HORIZ. DIST. = 2,403'± SLOPE DIST. = 2,441'±	26+00
STATIONING & P.I. ANGLES	0+00	P.I. 1+97 ANGLE: 11° LT	6+10 EX. GAS LINE (SIZE & OWNER UNKNOWN)	P.I. 12+73 ANGLE: 43° LT	19+23 ANGLE: 32° RT
			P.I. 6+79 ANGLE: 05° RT		P.I. 23+79 ANGLE: 33° LT
					P.I. 25+71 ANGLE: 16° RT



E&S LEGEND

- PROJECT AREA-OF-INTEREST
- SILT SAVER BSRF-P1
- SILT SAVER BSRF-P2
- ROLLED EROSION CONTROL PRODUCT
- (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- PERMANENT WATER BAR (PLAN)
- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- TEMPORARY TIMBERMAT (AS NEEDED)
- STONE CONSTRUCTION ENTRANCE

DESIGN CLASS LOCATION	0+00	CLASS 1	26+00
PIPE DETAIL	0+00	1+97 6+10 6+79	12+73 15+00 19+23 23+79 25+71



THRASHER

IFP
ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

HORIZ. SCALE IN FEET: 1" = 100'

VERT. SCALE IN FEET: 1" = 200'

SUMMARY OF MATERIALS (3D)

①	30" STEEL API SL PSL-2, X-70, 0.625" WALL, FBE COATED PIPE	2,638 LF
RECP	ROLLED EROSION CONTROL PRODUCT	400,073 SF
SS2	SILT SAVER BSRF-P2	5,950 LF
TB	EARTH TRENCH BREAKERS	7
GM	GAS LINE MARKERS	6
TS	TEST STATIONS	2

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	QTY
REVISION					

- GENERAL INFORMATION**
- PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig
 - COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
 - ALL STATIONING SHOWN IS HORIZONTAL STATIONING.
 - BASELINE STATION SHOWN PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
 - THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
 - ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
 - ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
 - THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
 - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero
MidstreamPartners LP

SMITHBURG TO MXP RESIDUE PIPELINE
STA. 0+00 TO STA. 26+00

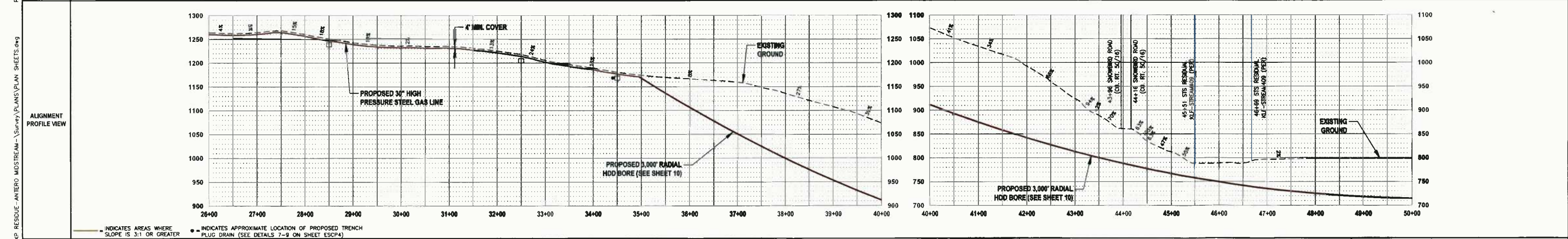
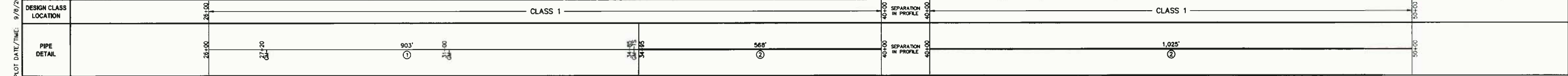
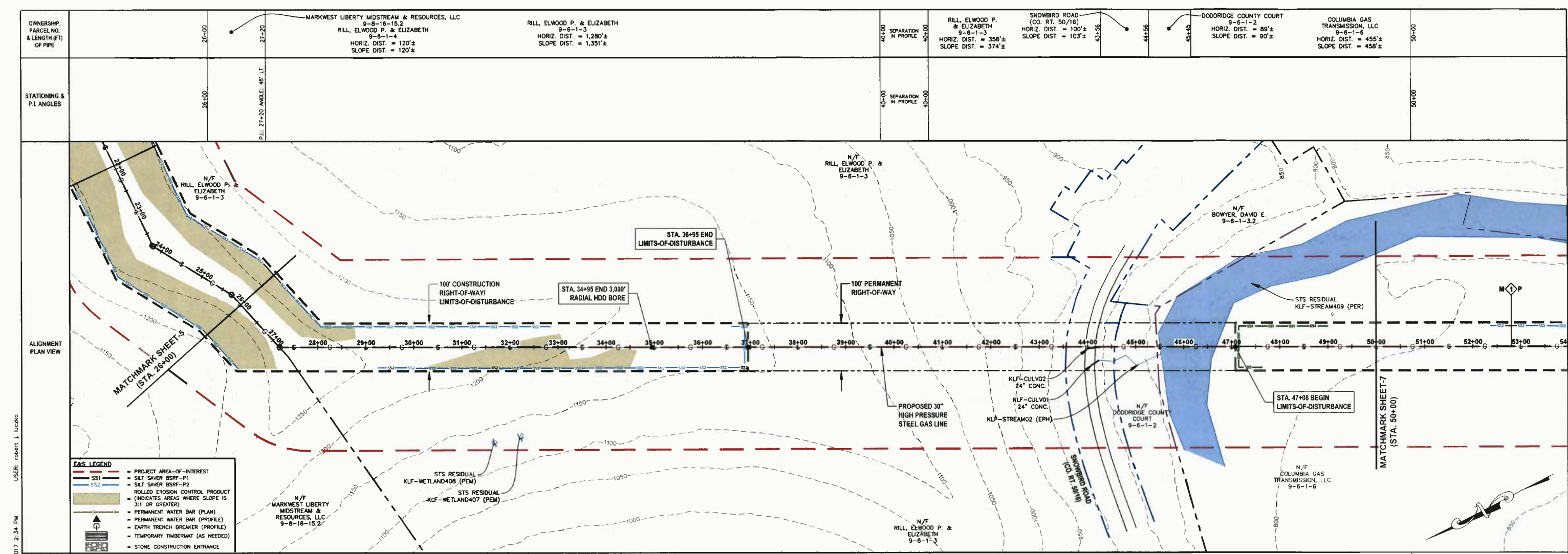
PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/8/2017 AFE No.: A05924
SCALE: AS SHOWN
DRAWN BY: JJA, RJA (TDC)
CHECKED: AR, JRN (TDC)

SHEET 05

SHT. NAME: 050-6467\MXP\PLAN1 REV. 0

LAYOUT TAB: PLAN1 CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\PLAN SHEETS.dwg USER: robert.j.luczko PLOT DATE/TIME: 9/8/2017 2:22 PM



THRASHER

ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

HORIZ. SCALE IN FEET: 1" = 100'

VERT. SCALE IN FEET: 1" = 200'

IFP

ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

SUMMARY OF MATERIALS (3D)

①	30" STEEL API 5L PSL-2, X-70, 0.625" WALL, FBE COATED PIPE	903 LF
②	30" STEEL API 5L PSL-2, X-70, 0.625" WALL, ARO COATED PIPE	1,593 LF
RECP	ROLLED EROSION CONTROL PRODUCT	37,944 SF
SS1	SILT SAVER BSRF-P1	320 LF
SS2	SILT SAVER BSRF-P2	1,596 LF
TB	EARTH TRENCH BREAKERS	3
GM	GAS LINE MARKERS	3
TS	TEST STATIONS	1

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE	BY
REVISION						

- GENERAL INFORMATION**
- PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig
 - COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
 - ALL STATIONING SHOWN IS HORIZONTAL STATIONING.
 - BASELINE STATION DEPICTED PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
 - THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
 - ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
 - ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
 - THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
 - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero
MidstreamPartners LP

SMITHBURG TO MXP RESIDUE PIPELINE
STA. 26+00 TO STA. 50+00

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/8/2017
SCALE: AS SHOWN
DRAWN BY: JDA, RJA (TTC)
CHECKED: AR, JRN (TTC)

SHEET 06

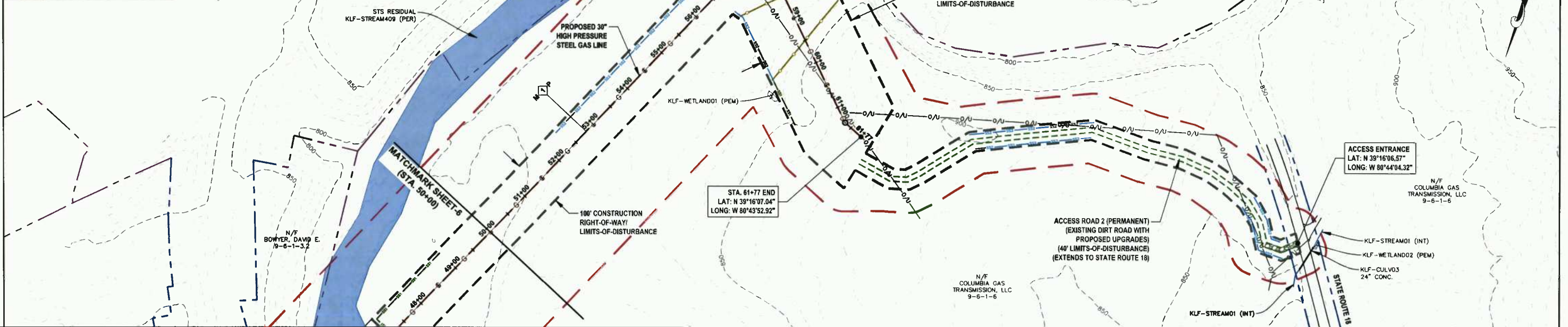
SHT. NAME: 050-6467\MXP\PLAN2

REV. 0

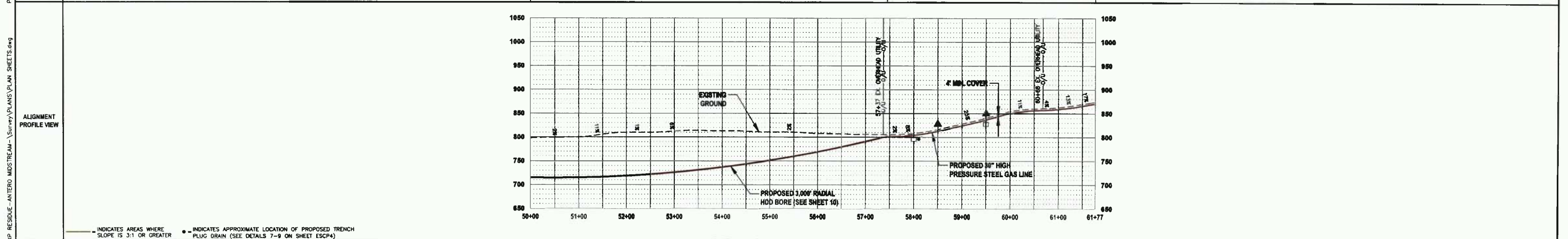
LAYOUT TAB: PLAN2
CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\PLAN SHEETS.dwg
PLOT DATE/TIME: 9/8/2017 2:34 PM
USER: robert.j.luckko

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE		COLUMBIA GAS TRANSMISSION, LLC 9-6-1-6 HORIZ. DIST. = 1,177'± SLOPE DIST. = 1,191'±	61+77
STATIONING & P.I. ANGLES	50+00 50+00 50+00	57+37 EX. OVERHEAD UTILITY P.I.: 57+49 ANGLE: 82° RT P.I.: 58+31 ANGLE: 29° RT 60+88 EX. OVERHEAD UTILITY P.I.: 61+35 ANGLE: 22° LT	61+77

- EAS LEGEND**
- PROJECT AREA-OF-INTEREST
 - SILT SAVER BSRF-P1
 - SILT SAVER BSRF-P2
 - ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
 - PERMANENT WATER BAR (PLAN)
 - PERMANENT WATER BAR (PROFILE)
 - EARTH TRENCH BREAKER (PROFILE)
 - TEMPORARY TIMBERMAT (AS NEEDED)
 - STONE CONSTRUCTION ENTRANCE



DESIGN CLASS LOCATION	CLASS 1
PIPE DETAIL	



THRASHER

IFP
ISSUED FOR PERMITTING

DATE: XX/XX/XXXX
AFE # A05924

HORIZ. SCALE IN FEET: 1" = 100'
VERT. SCALE IN FEET: 1" = 200'

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)	
NO.	DESCRIPTION	QTY	NO.
①	30" STEEL API SL PSL-2, X-70, 0.625" WALL, FBE COATED PIPE	439 LF	
②	30" STEEL API SL PSL-2, X-70, 0.625" WALL, ARO COATED PIPE	752 LF	
SS1	SILT SAVER BSRF-P1	97 LF	
SS2	SILT SAVER BSRF-P2	1,511 LF	
TB	EARTH TRENCH BREAKERS	2	NO.
WB	PERMANENT WATERBARS	2	
GM	GAS LINE MARKERS	3	
TS	TEST STATIONS	2	

REVISION	
NO.	DESCRIPTION

- GENERAL INFORMATION**
- PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig
 - COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
 - ALL STATIONING SHOWN IS HORIZONTAL STATIONING.
 - BASELINE STATION DEPICTED PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
 - THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
 - ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
 - ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
 - THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
 - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero
MidstreamPartners LP

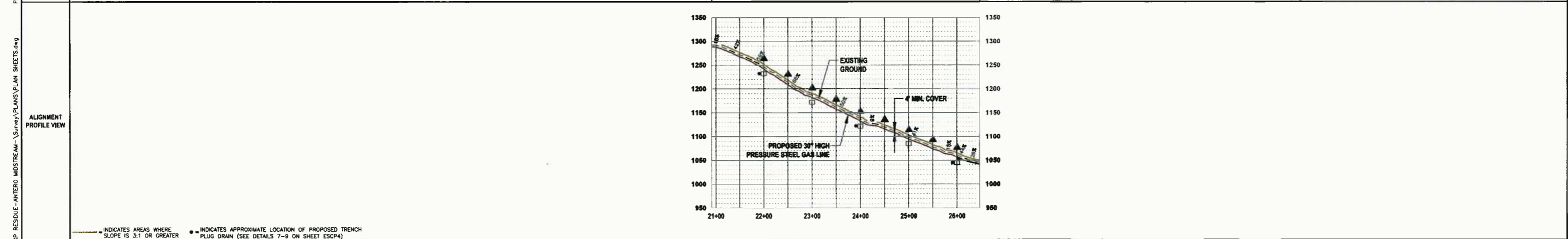
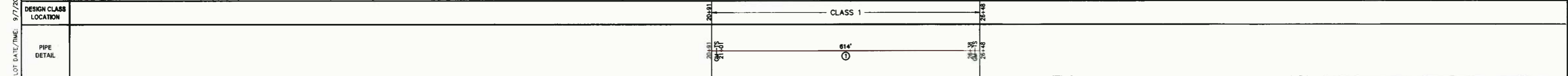
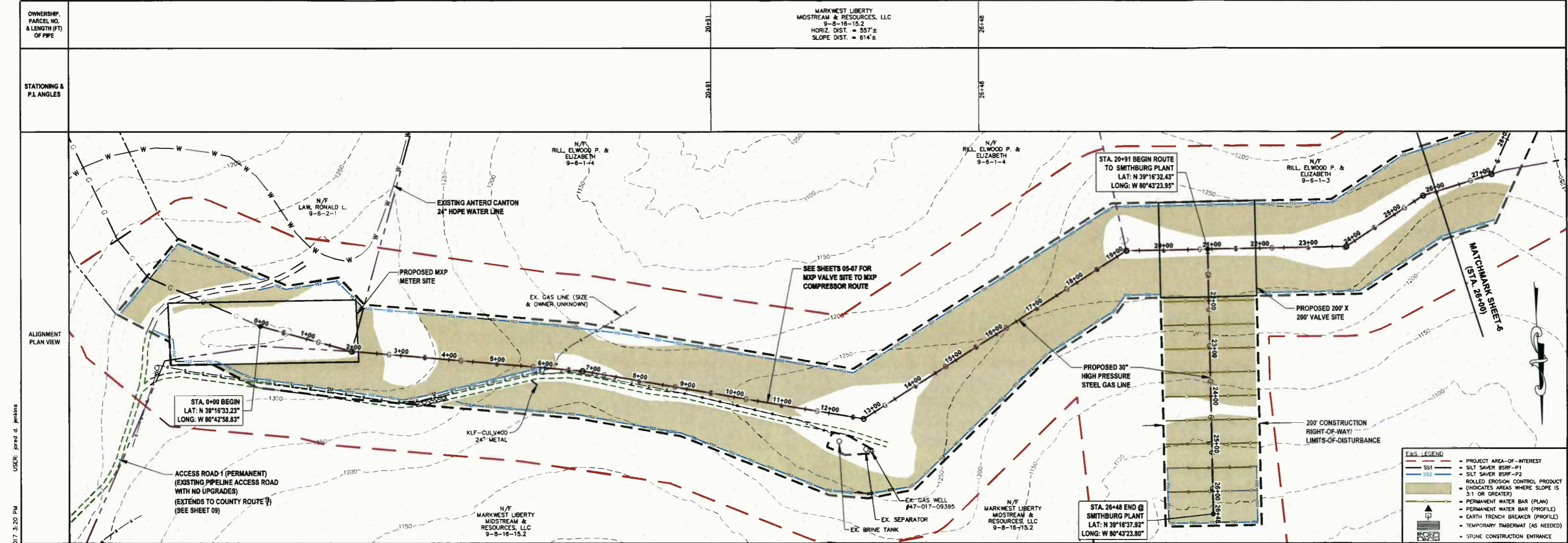
SMITHBURG TO MXP RESIDUE PIPELINE
STA. 50+00 TO STA. 61+77

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
ODDORIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017 (APE No. A05924)
SCALE: AS SHOWN
DRAWN BY: JJA, PLS (TTO)
CHECKED: JJA, JPH (TTO)

SHEET 07
SHT. NAME: 050-6467\MXP\PLAN3 REV. 0

LAYOUT TAB: PLANS
CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-SURVEY\PLANS\PLAN SHEETS.dwg
PLOT DATE/TIME: 9/7/2017 3:12 PM
USER: Jared d. Jenkins



THRASHER

ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

HORIZ. SCALE IN FEET: 1" = 100'

VERT. SCALE IN FEET: 1" = 200'

INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 7-9 ON SHEET ESCP4)

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY
1	30" STEEL API 5L PSL-2, X-70, 0.625" WALL, FBE COATED PIPE	614 LF
RECP	ROLLED EROSION CONTROL PRODUCT	85,131 SF
SS2	SILT SAVER BSRF-P2	417 LF
TB	EARTH TRENCH BREAKERS	5
WB	PERMANENT WATERBARS	9
GM	GAS LINE MARKERS	2
TS	TEST STATIONS	2

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

GENERAL INFORMATION		
1.	PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig	
2.	COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT	
3.	ALL STATIONING SHOWN IS HORIZONTAL STATIONING.	
4.	BASELINE STATION SHOWN PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.	
5.	FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.	
6.	THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.	
7.	ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.	
8.	ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.	
9.	THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"), FOR REDUCTIONS, REFER TO GRAPHIC SCALE.	
10.	FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.	

Antero
Midstream Partners LP

SMITHBURG TO MXP RESIDUE PIPELINE
STA. 20+91 TO STA. 26+48

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017
SCALE: AS SHOWN
DRAWN BY: JDA, RAL (TTC)
CHECKED: AR, JRI (TTC)

SHEET 08

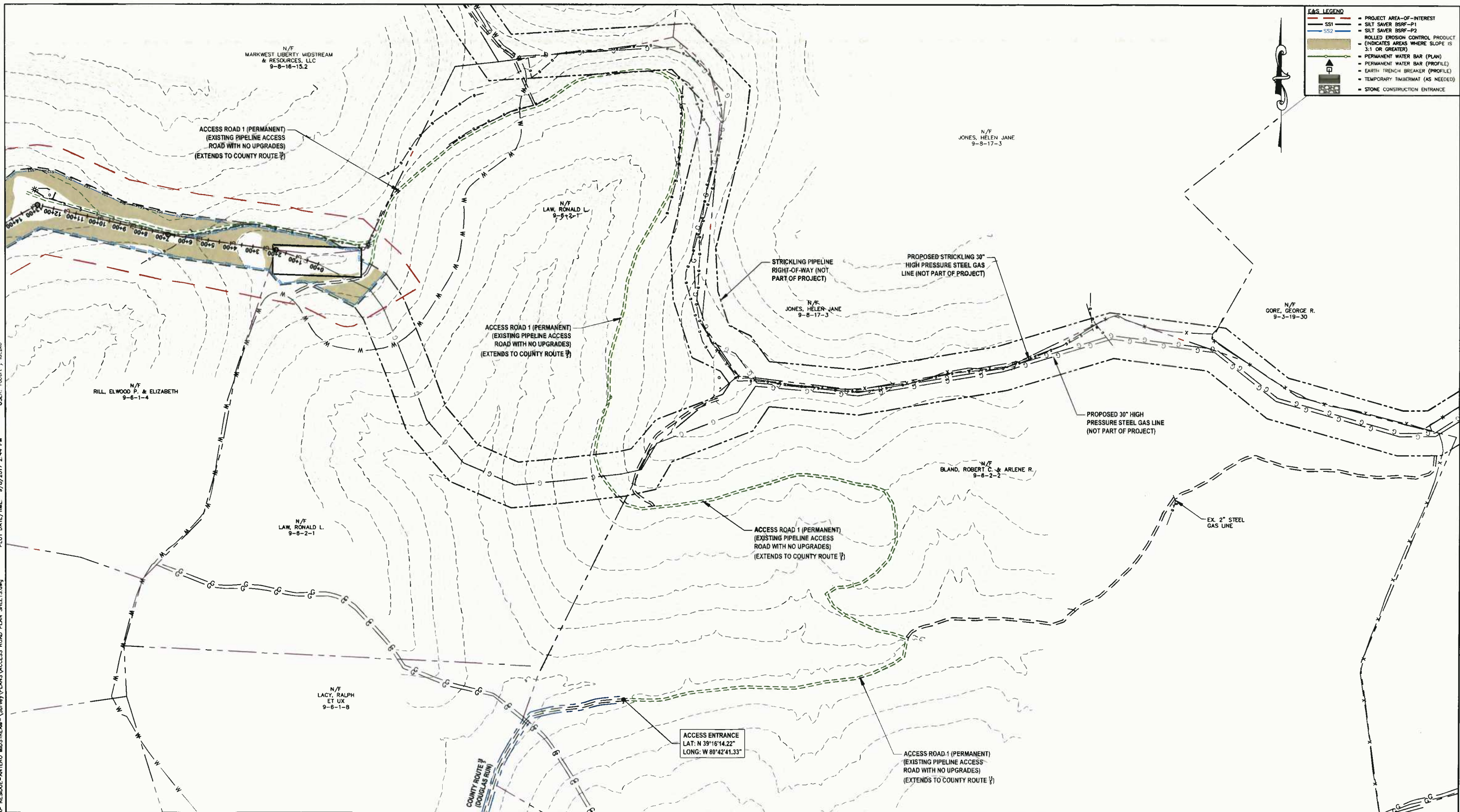
SHT. NAME: 050-6467\MXP\PLAN4

REV. 0

LAYOUT TAB: PLANS
CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\PLAN SHEETS.dwg

USER: jared d. jenkins
PLOT DATE/TIME: 9/7/2017 3:20 PM

LAYOUT TAB: ARI
 CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\ACCESS ROAD PLAN SHEETS.dwg
 PLOT DATE/TIME: 9/8/2017 2:44 PM
 USER: robert.j.luczko



E&S LEGEND

- PROJECT AREA-OF-INTEREST
- SILT SAVER BSRF-P1
- SILT SAVER BSRF-P2
- ROLLED EROSION CONTROL PRODUCT
- (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- PERMANENT WATER BAR (PLAN)
- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- TEMPORARY TIMBERMAT (AS NEEDED)
- STONE CONSTRUCTION ENTRANCE

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: XX/XX/XXXX
AFE # A05924

HORIZ. SCALE IN FEET
0 200 400

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY

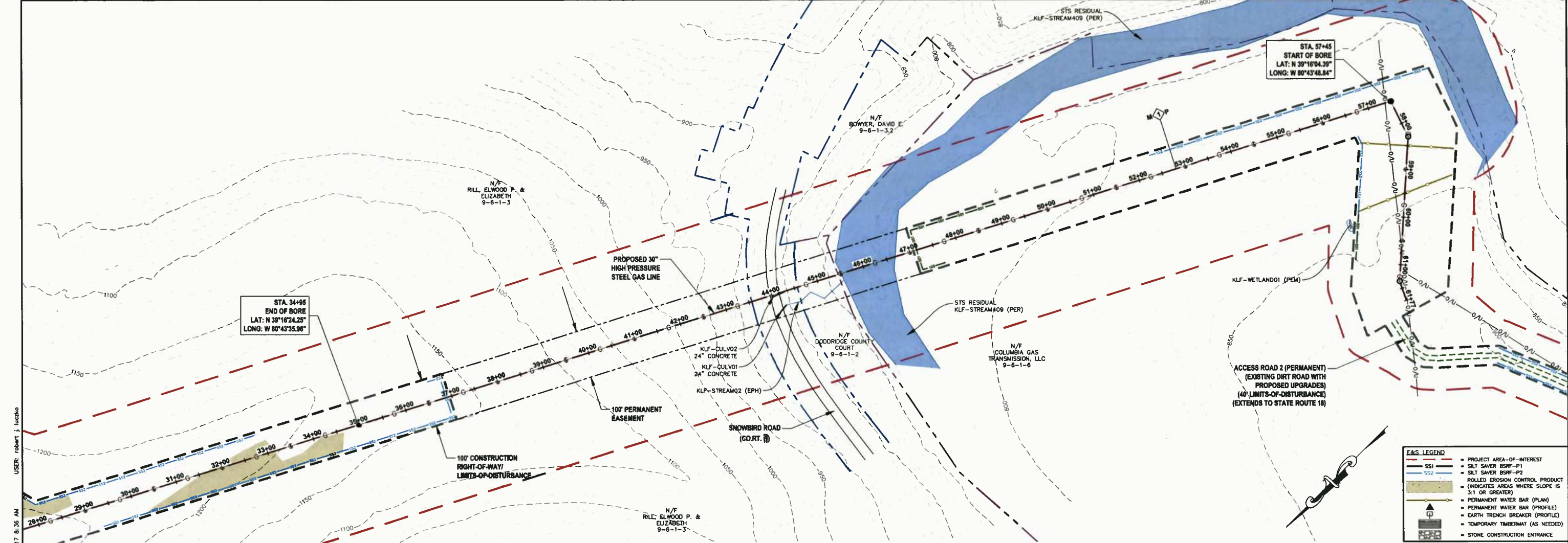
- GENERAL INFORMATION**
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
HORIZONTAL - MAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
VERTICAL - NAVD 88 (GEOID128), U.S. SURVEY FOOT
 - ALL STATIONING SHOWN IS HORIZONTAL STATIONING
 - CENTERLINE STATION DEPICTED PERTAINS TO THE CENTER OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
 - FIELD DELINEATION PERFORMED AND PROVIDED BY: KLENFELDER, INC.
 - THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
 - ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
 - THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
 - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero
Midstream Partners LP

SMITHBURG TO MXP RESIDUE PIPELINE ACCESS ROAD PLAN SHEET

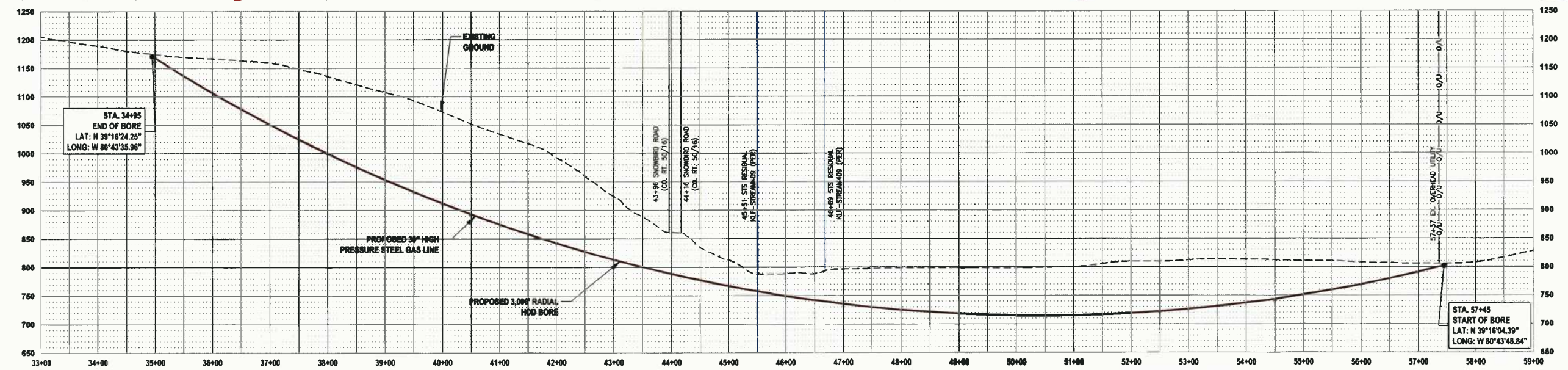
PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/8/2017 AFE No: A05924
SCALE: AS SHOWN
DRAWN BY: JAL, R.L. (TJO)
CHECKED: AR, JRM (TJO) SHEET 09
SHT. NAME: 050-6467\MXP\ARI REV. 0



E&S LEGEND

- PROJECT AREA-OF-INTEREST
- SILT SAVER BSRF-P1
- SILT SAVER BSRF-P2
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- PERMANENT WATER BAR (PLAN)
- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- TEMPORARY TIMBERMAT (AS NEEDED)
- STONE CONSTRUCTION ENTRANCE



LAYOUT TAB: HDD BORE
 CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\BORE SHEET.dwg
 USER: robert.l.lucko
 PLOT DATE/TIME: 9/8/2017 8:36 AM

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

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HORIZ. SCALE IN FEET

0 100 200
VERT. SCALE IN FEET

SMITHBURG TO MXP RESIDUE PIPELINE BORE PLAN SHEET

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/8/2017 AFE No. A05924

SCALE: AS SHOWN

DRAWN BY: JDL, RLB (TIG)

CHECKED: AR, JRH (TIG)

SHEET 10

SHT. NAME: 050-6467\MXP\HDD BORE

REV. 0

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

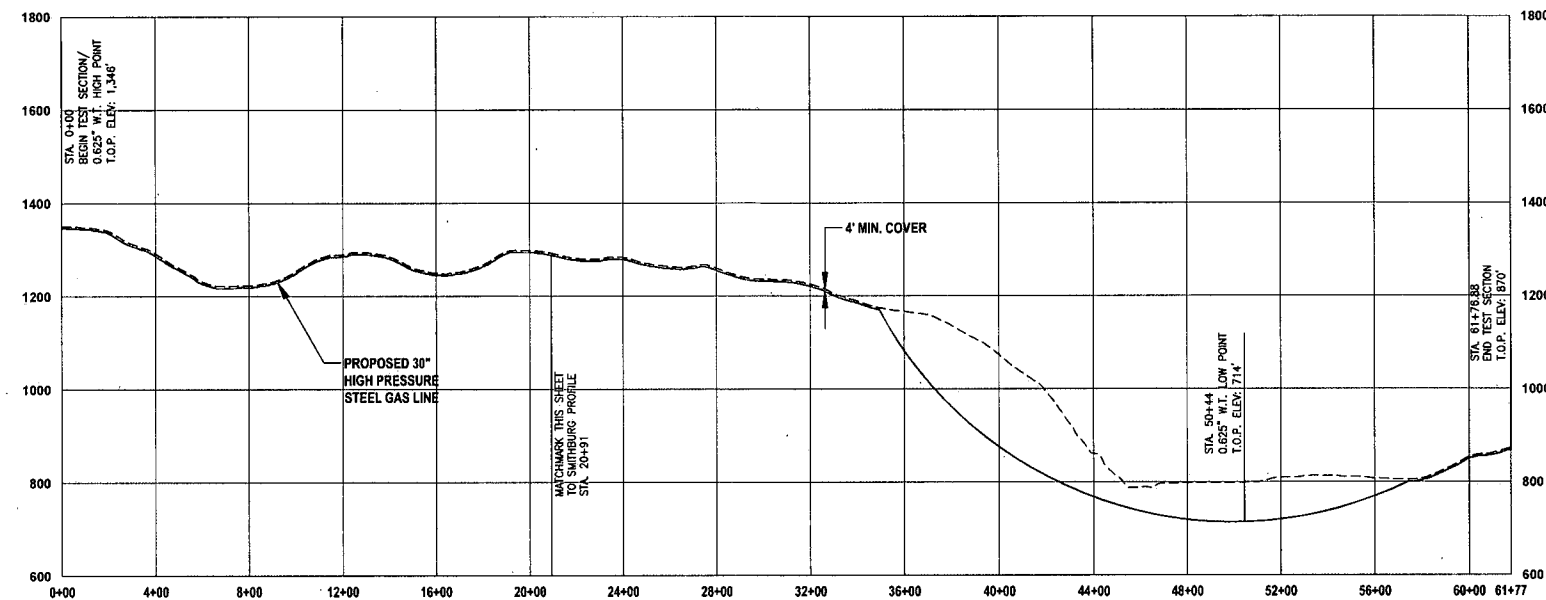
GENERAL INFORMATION

- PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
- ALL STATIONING SHOWN IS HORIZONTAL STATIONING.
- BASELINE STATION DEPICTED PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
- FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
- THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
- ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
- ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
- THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
- FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

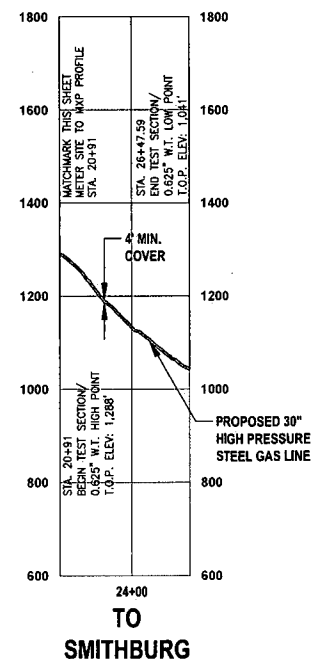
REVISION

NO.	DESCRIPTION	DATE	BY

LAYOUT TAB: HTP
 CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\HYDROSTATIC TEST PROFILE SHEET.dwg
 PLOT DATE/TIME: 9/7/2017 11:02 AM
 USER: robert.j.luczko



METER SITE TO MXP



TO SMITHBURG

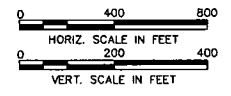
HYDROSTATIC TEST (METER SITE TO MXP)		
	Station	Elevation (ft msl)
Start Point	0+00	1,346
Low Point (0.625 wt X-70)	50+44.199	714
High Point (0.625 wt X-70)	0+00	1,346
End Point	61+76.88	870
Differential (0.625 wt X-70)	632	
Static Head Pressure @ 714' (0.625 wt X-70) PSI	273.8456	

HYDROSTATIC TEST (TO SMITHBURG)		
	Station	Elevation (ft msl)
Start Point	20+91	1,288
Low Point (0.625 wt X-70)	26+47.59	1,041
High Point (0.625 wt X-70)	20+91	1,288
End Point	26+47.59	1,041
Differential (0.625 wt X-70)	247	
Static Head Pressure @ 1,041' (0.625 wt X-70) PSI	107.0251	



IFP

ISSUED FOR PERMITTING
 DATE: XX/XX/XXXX
 AFE # A05924



SUMMARY OF MATERIALS (3D)

SUMMARY OF MATERIALS (3D)

GENERAL INFORMATION

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY

- PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig
- REFER TO ANTERO MIDSTREAM PRESSURE TESTING PROCEDURE.
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
 HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
 VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
- ALL STATIONING SHOWN IS HORIZONTAL STATIONING.
- THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

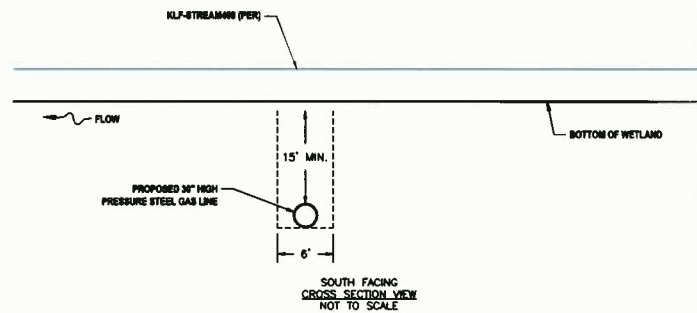
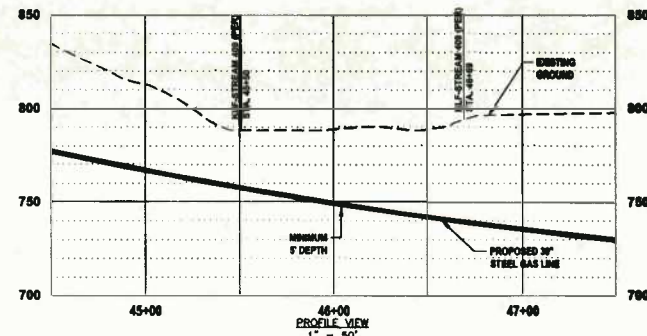
Antero
 Midstream Partners LP

**SMITHBURG TO MXP RESIDUE PIPELINE
 HYDROSTATIC TEST PROFILE**

PROPOSED 30" HIGH PRESSURE
 STEEL GAS LINE
 DODDRIDGE COUNTY, WEST VIRGINIA

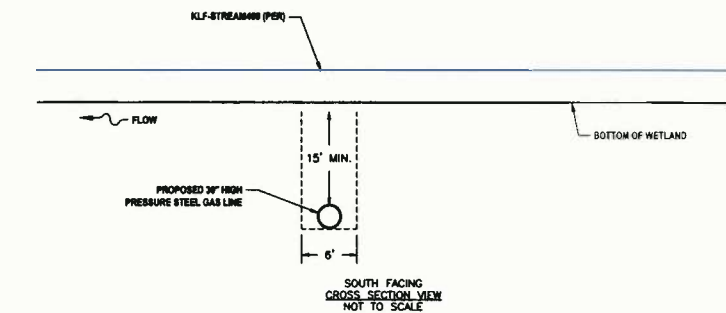
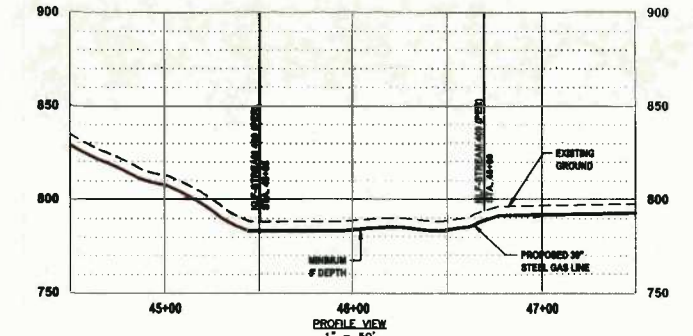
DATE: 9/7/2017 AFE No: A05924
 SCALE: AS SHOWN
 DRAWN BY: JLL, RLB (TIG) SHEET 11
 CHECKED: AR, JPH (TIG)
 SHT. NAME: 050-6467\MXP\HTP REV. 0

**STREAM CROSSING 1
KLF-STREAM409 (PER) (HDD BORE)**



- LEGEND**
- PERMANENT WATER BAR (PROFILE)
 - EARTH TRENCH BREAKER (PROFILE)
 - PERMANENT WATER BAR (PLAN)
 - SS1 SILT SAVER BSW-P1
 - SS2 SILT SAVER BSW-P2
 - ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
 - DELINEATED STREAM
 - DELINEATED WETLAND
 - EDGE OF ACCESS ROAD
 - EDGE OF DIRT/GRANUL ROAD
 - CONSTRUCTION RIGHT-OF-WAY/LIMITS OF DISTURBANCE
 - PROPOSED 30" STEEL GAS LINE
 - 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING
- STREAM INFORMATION:**
STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 120.0'
PROPOSED METHOD OF CONSTRUCTION: HDD BORE
- REFERENCES:**
LAT: 38°18'14.52" N
LONG: 80°43'42.27" W
SHEET REF: SHEET 7
- NOTES:**
1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATING INSTALLED DURING FINAL RESTORATION.

**STREAM CROSSING 1
KLF-STREAM409 (PER) (OPEN CUT)**



- LEGEND**
- PERMANENT WATER BAR (PROFILE)
 - EARTH TRENCH BREAKER (PROFILE)
 - PERMANENT WATER BAR (PLAN)
 - SS1 SILT SAVER BSW-P1
 - SS2 SILT SAVER BSW-P2
 - ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
 - DELINEATED STREAM
 - DELINEATED WETLAND
 - EDGE OF ACCESS ROAD
 - EDGE OF DIRT/GRANUL ROAD
 - CONSTRUCTION RIGHT-OF-WAY/LIMITS OF DISTURBANCE
 - PROPOSED 30" STEEL GAS LINE
 - 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING
- STREAM INFORMATION:**
STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 120.0'
PROPOSED METHOD OF CONSTRUCTION: OPEN CUT
- REFERENCES:**
LAT: 38°18'14.52" N
LONG: 80°43'42.27" W
SHEET REF: SHEET 7
- NOTES:**
1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATING INSTALLED DURING FINAL RESTORATION.

LAYOUT TAB: SANC1
CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-SURVEY\PLANS\STREAM CROSSING SHEETS.dwg
PLOT DATE/TIME: 9/7/2017 8:35 AM
USER: jpsico m. delaney



IFP
ISSUED FOR PERMITTING
DATE: XX/XX/XXXX
AFE # A05924

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

GENERAL INFORMATION		
1.	PROPOSED HIGH PRESSURE GAS LINE MAOP = 1,440 psig; PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig	
2.	COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT	
3.	FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.	
4.	ALL STATIONING SHOWN IS HORIZONTAL STATIONING.	
5.	THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.	
6.	FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.	

Antero
Midstream Partners LP

**SMITHBURG TO MXP RESIDUE PIPELINE
STREAM & WETLAND CROSSINGS**

PROPOSED 30" HIGH PRESSURE
STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017 AFE No.: A05924
SCALE: AS SHOWN
DRAWN BY: JJA, RJA (TTC)
CHECKED BY: AR, JBN (TTC)

SHEET 12

SHT. NAME: 050-6467\MXP\S&WC1
REV. 0

GENERAL NOTES

1. ANTERO WILL OBTAIN AN ENCRoACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE PROJECT MANAGER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH PROBLEMS. WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
3. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DWM) EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE HANDBOOK. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT WILL GOVERN.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, AT HIS OR HER EXPENSE, OF ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL WEST VIRGINIA 811.
5. INSTALLATION OF CONCRETE, CORRUGATED METAL OR HDPE STORM PIPE SHALL BE IN CONFORMANCE WITH THESE DRAWINGS.
6. ALL MATERIALS USED FOR FILL OR BACK FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, BOULDERS, ORGANIC MATERIAL, OR ANY OTHER NON-COMPACTABLE SOIL TYPE MATERIALS. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.
7. A PRE-CONSTRUCTION KICK-OFF MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION.
8. IF SPRINGS OR SEEPS AND/OR AN ACCUMULATION OF GROUND WATER IS OBSERVED ON A SIDE CUT OR CUT SLOPE PIPE TRENCH, IMMEDIATELY INFORM THE ON-SITE INSPECTOR FOR AN EVALUATION AND CONSIDERATION OF THE INSTALLATION OF A FRENCH DRAIN.
9. EROSION CONTROL BLANKETS ARE REQUIRED FOR SLOPES OF 30 PERCENT OR GREATER.
10. HYDROMULCH CAN BE UTILIZED AS A SUBSTITUTE TO EROSION CONTROL BLANKETS WITH APPROVAL FROM ANTERO, EXCEPT FOR ON RESTORED STREAM BANKS AND ROAD BANKS. HYDROMULCH SHALL ONLY BE A VALID SUBSTITUTE FOR EROSION CONTROL BLANKETS DURING GRASS GROWING SEASONS.
11. HYDROSTATIC PRESSURE TEST - POTABLE WATER FROM ANTERO APPROVED SOURCES ONLY TO BE USED FOR HYDROTEST. NO DEWATERING IS PERMITTED WITHOUT PRIOR ANTERO APPROVAL AND APPLICABLE PERMITS. NOTIFICATION REQUIRED TO ANTERO ENVIRONMENTAL PRIOR TO HYDROTEST.

EROSION AND SEDIMENT CONTROL PLAN NARRATIVE/CONSTRUCTION SEQUENCES

THE EROSION AND SEDIMENT (E&S) CONTROL MEASURES FOR THE PIPELINE CONSTRUCTION ACTIVITIES CONSIST OF COMPOST FILTER SOCK, SILT FENCE, RIGHT-OF-WAY (ROW) DIVERSIONS, TRENCH BREAKERS (PLUGS), AND TEMPORARY AND PERMANENT SEEDING AND MULCHING. BMP SPECIFICATIONS FOR THE E&S CONTROL PLAN (E&SCP) AREA TO BE UTILIZED BY THE CONSTRUCTION CONTRACTOR ACCORDING TO THE PROVIDED PLAN. STRAWHAY BALES WILL NOT BE USED AS AN E&S CONTROL, HOWEVER, THEY MAY BE ACCEPTABLE TO USE AS A VELOCITY DISSIPATER.

GENERAL CONSTRUCTION SEQUENCE PER PIPELINE SEQUENCE:

1. PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA. THESE SHALL BE CLEARLY MARKED, BOTH IN THE FIELD AND ON THE PLANS, TO PREVENT DAMAGE AND OFF-SITE IMPACTS.
2. INSTALL STONE CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE TEMPORARY ACCESS ROADS WILL BE ACCESSING A PAVED ROADWAY.
3. INSTALL TEMPORARY E&S CONTROLS (SILT FENCE, ROW DIVERSIONS, ETC.) PRIOR TO ANY EARTH DISTURBING ACTIVITY, WHICH INCLUDES GRUBBING AND EXCAVATION, TO ENSURE, TO THE MAXIMUM EXTENT PRACTICABLE, THAT NO SIGNIFICANT EROSION OR SEDIMENTATION OCCURS.
4. ROW DIVERSIONS AND/OR OTHER EROSION AND SEDIMENT CONTROL DEVICES WILL BE INSTALLED AS NEEDED. IF CLEARING AND GRUBBING IS REQUIRED, SEE BELOW REGARDING THE MANAGEMENT AND DISPOSAL OF DEBRIS.
5. AFTER ACCESS TO AND ALONG THE PROPOSED UTILITY LINE HAS BEEN PROVIDED, THE GENERAL CLEARING AND GRUBBING OF THE TREES AND BRUSH ALONG THE ROW FOR PIPE TRENCHING MAY COMMENCE TO THE WIDTH SPECIFIED IN THE E&S PLANS. TREES SHALL BE WINDROWED ON LOW SIDE OF RIGHT-OF-WAY. ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON-SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE WATERS. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON-SITE, UNLESS LANDOWNER STIPULATIONS SPECIFY OTHERWISE.
6. MINOR GRADING WITHIN THE ROW WILL BE CONDUCTED WHERE NECESSARY TO PROVIDE AN EVEN SURFACE FOR SAFE AND EFFICIENT OPERATION OF CONSTRUCTION EQUIPMENT. GRADING WILL BE THE MINIMUM AMOUNT NECESSARY AND BMPs WILL BE INSTALLED PROMPTLY. TREE STUMPS, AND LARGE ROCKS AND BOULDERS WILL ALSO BE REMOVED FOR SAFETY AT THIS TIME.
7. EXCAVATE PIPELINE TRENCH. A MINIMUM COVER OF 3' SHALL BE PROVIDED ABOVE PIPELINE AT ALL LOCATIONS EXCEPT FOR WETLANDS AND STREAMS. A MINIMUM COVER OF 5' SHALL BE PROVIDED ALONG PIPELINE AT WETLAND AND STREAM CROSSINGS.
8. THE PROPOSED CONSTRUCTION ROW WILL BE USED AS A WORK AREA FOR TRENCH EXCAVATION, EQUIPMENT MOVEMENT, AND THE STORAGE OF SOIL STOCKPILES, AS NEEDED. EQUIPMENT SOIL STOCKPILES, AND OTHER MATERIALS AREA TO REMAIN UPSLOPE OF BMPs DURING CONSTRUCTION ACTIVITIES.
9. SEGREGATION OF TOPSOIL AND SUBSOIL WILL BE PERFORMED WHERE TRENCH EXCAVATION TAKES PLACE IN AN AGRICULTURAL, WETLAND, OR RESIDENTIAL AREA. IT IS BEST MANAGEMENT PRACTICE TO SALVAGE AND SEGREGATE TOPSOIL WHERE APPLICABLE.
10. TEMPORARY E&S CONTROLS FOR STREAM CROSSINGS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE E&SCP AND ASSOCIATED DETAIL SHEETS.
11. STREAM AND RIVER PIPELINE CROSSING CONSTRUCTION METHODS WILL BE INSTALLED AT LOCATIONS SHOWN ON THE E&S PLAN SHEETS AND AS SPECIFIED ON THE DETAIL SHEETS. WATERBODIES WILL BE CROSSED WITH TEMPORARY BRIDGES, SUCH AS TIMBER MATS OR APPROVED EQUAL CROSSINGS, PRIOR TO CROSSING THE CONVEYANCE. STREAMBANK STABILIZATION WILL BE PERFORMED IMMEDIATELY FOLLOWING COMPLETION OF THE PIPELINE INSTALLATION.
12. WETLAND CROSSING WIDTHS FOR UTILITY CROSSINGS WILL BE KEPT TO A MINIMUM AND WILL BE STABILIZED BY PLACING TIMBER MATS, RIPRAP, OR PRE-FABRICATED SWAMP MATS, AS SHOWN ON THE DETAIL SHEETS. ALL MATERIALS USED TO STABILIZE ACCESS ROADS IN WETLAND AREAS WILL BE REMOVED FROM THE WETLAND UPON COMPLETION OF THE PIPELINE CONSTRUCTION. A BARRIER (GEOTECH FABRIC) SHOULD BE USED TO PREVENT MIXING OF SOILS.
13. PIPELINE SECTIONS WILL BE TRANSPORTED TO THE WORK AREA AND STRUNG ALONG THE WORKING SIDE OF THE ROW PARALLEL TO THE TRENCH LINE. THE PIPELINE WILL BE BENT TO CONFORM TO THE TRENCH CONTOUR, WELDED AND PLACED ON TEMPORARY SUPPORTS ALONGSIDE THE TRENCH. WELDS WILL BE VISUALLY AND RADIO-GRAPHICALLY INSPECTED AND REPAIRED AS NECESSARY. THE PIPE SECTION WILL BE LOWERED INTO THE TRENCH AND PLACED ON PADDING MATERIAL LAID ON THE TRENCH BOTTOM TO PROTECT THE PIPE COATING. ANY WETNESS ENCOUNTERED DURING CONSTRUCTION WORK WILL BE DEWATERED BY USING PUMPS, HOSES, AND DEWATERING BAGS, AND WILL BE DISCHARGED TO A WELL-VEGETATED UPLAND AREA.
14. INSTALL TRENCH BREAKERS (PLUGS) AT LOCATIONS AS SHOWN ON THE E&S PLAN SHEETS AND AS SPECIFIED ON THE DETAIL SHEETS.
15. THE TRENCH WILL BE SUBSEQUENTLY BACKFILLED WITH SUITABLE EXCAVATED MATERIAL. THE BACKFILL MATERIAL WILL BE SLIGHTLY CROWNED IN UPLAND AREAS TO ALLOW FOR SETTLEMENT THAT MAY OCCUR. CROWNING THE SOIL SLIGHTLY OVER THE PIPELINE WILL HELP PREVENT FUTURE STORMWATER-RELATED PROBLEMS FROM THE SETTLING OF THE BACKFILLED AREA. NO CROWNING OF THE SOILS WILL TAKE PLACE IN WETLANDS, STREAMS, OR FLOODPLAINS. DISTURBED AREAS WILL BE RESTORED TO THEIR ORIGINAL TOPOGRAPHIC CONTOURS.

16. EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FROM EROSION FORCES OF RAINDROPS, FLOWING WATER AND WIND. ALL DISTURBED AREAS THAT ARE AT FINAL GRADE MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS AND AREAS THAT WILL NOT BE WORKED AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS. FOR DISTURBED AREAS WITH SLOPES OF 3:1 OR GREATER, THE AREA WILL BE VERTICALLY TRACKED AND EROSION CONTROL FABRIC SHALL BE INSTALLED AFTER SEED, MULCH, AND SOIL SUPPLEMENTS HAVE BEEN APPLIED. THE TEMPORARY/PERMANENT SEEDING AND MULCH TABLE ON THE DETAIL SHEETS CONSIST OF THE TYPE OF SEED AND APPLICATION RATE THAT SHALL BE APPLIED, INCLUDING THE NURSE CROP THAT SHALL BE USED DURING CERTAIN TIME OF THE YEAR TO PROMOTE STABILIZATION OF THE SOIL UNTIL THE PERENNIAL SEEDLINGS ESTABLISH.
17. IN THE UNLIKELY EVENT THAT THERE ARE EXCESS EXCAVATED MATERIALS REMAINING AFTER THE TRENCH HAS BEEN BACKFILLED, THE MATERIAL WILL BE DISPOSED OF WITHIN THE EXISTING ROW IN AN UPLAND AREA. MATERIAL WILL BE SPREAD IN A THIN LAYER AND TIED INTO EXISTING CONTOURS TO CREATE POSITIVE DRAINAGE FOR STORMWATER RUNOFF.
18. ALL E&S CONTROLS WILL BE INSPECTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD UNTIL THERE IS A UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE ESTABLISHED. TEMPORARY BMPs WILL BE REMOVED UPON ACHIEVING VEGETATIVE STABILIZATION. THE 70 PERCENT REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT A PERCENT OF THE SITE.
19. NO SEDIMENT TRACKING ON THE ROADWAY IS ALLOWED. IN THE EVENT THAT SEDIMENT IS INADVERTENTLY TRACKED ONTO THE ROAD, THE ROAD SHALL BE CLEANED THOROUGHLY BY THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA. STREET WASHING OF SEDIMENTS TO THE STORM DRAIN SYSTEM IS NOT ALLOWED. IF STREET WASH WASTEWATER CAN BE CONTROLLED FROM ENTERING THE STORM DRAINAGE SYSTEM, THEN IT SHALL BE PUMPED BACK ONTO THE SITE, CONTAINED AND DISPOSED OF PROPERLY.
20. CONSTRUCTION ACCESS RESTORATION SHALL BE EQUAL OR BETTER THAN THE PRE-CONSTRUCTION CONDITION AND GRADES THAT WERE ALTERED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL GRADES AND MATCH EXISTING DRAINAGE PATTERNS.
21. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, EROSION CONTROL FABRICS AND MATTING, THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.
22. SELECTED SOIL STABILIZATION MEASURES SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND ESTIMATED DURATION OF USE.
23. SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.
24. LINEAR CONSTRUCTION ACTIVITIES SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL BE CONDUCTED TO MEET THE SOIL STABILIZATION TIMEFRAME REQUIREMENTS. CONTRACTORS SHALL INSTALL THE BEDDING MATERIALS, ROADBEDS, STRUCTURES, PIPELINES, OR UTILITIES AND RE-STABILIZE THE DISTURBED SOILS SO THAT THE 7-DAY REQUIREMENTS ARE MET.
25. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

PIPELINE BMPs INSTALLATION AND REMOVAL SEQUENCE

TEMPORARY AND PERMANENT BMPs WILL BE USED DURING CONSTRUCTION ACTIVITIES TO AVOID AND/OR MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS OF CONSTRUCTION ACTIVITIES.

INSPECTIONS OF ALL E&S CONTROLS SHALL BE CONDUCTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD. ALL NECESSARY CLEANING, REPAIR AND/OR MAINTENANCE SHALL BE MADE AS SOON AS POSSIBLE AFTER THE INSPECTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT INSPECTIONS AND REPAIRS ARE MADE AS OUTLINED HEREIN. ALL SEDIMENT COLLECTED FROM THE MAINTENANCE OF E&S CONTROL MEASURES SHALL BE SPREAD ON-SITE AND SEEDED AND MULCHED, OR DISPOSED OF PROPERLY AT A WV DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP)-APPROVED LOCATION. THE FOLLOWING MAINTENANCE WILL BE PERFORMED UNTIL STABILIZATION HAS BEEN ACHIEVED:

- TEMPORARY EROSION AND SEDIMENT CONTROL BMPs SHOULD BE REMOVED FOLLOWING CONFIRMATION THAT 70 PERCENT PERENNIAL VEGETATIVE COVERAGE IS ESTABLISHED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPs OR VEGETATION SHALL BE PERMANENTLY STABILIZED.
- WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPs IDENTIFIED IN THE E&SCP ARE INADEQUATE, THE E&SCP SHALL BE MODIFIED, AS APPROPRIATE, IN A TIMELY MANNER.
- MAINTENANCE OF THE E&SCP - THE E&SCP SHALL BE RETAINED ON-SITE. THE E&SCP SHALL BE MODIFIED WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP. THE DEP MUST BE NOTIFIED OF ANY CHANGES TO THE CONSTRUCTION SWPPP. DEPENDING ON THE SIGNIFICANCE OF THE REVISION, A PERMIT MODIFICATION MAY NEED TO BE SUBMITTED TO THE DEP.

THE FOLLOWING IS A GENERAL BMP INSTALLATION SEQUENCE FOR PIPELINE CONSTRUCTION ACTIVITIES:

- A STONE CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL BE ACCESSING A PAVED ROAD DIRECTLY FROM A DISTURBED AREA.
- TEMPORARY SEDIMENT BARRIERS, INCLUDING APPROPRIATELY SIZED SILT FENCE WILL BE PLACED DOWN SLOPE OF WORK AREAS AND AROUND SOIL STOCKPILES, AS NEEDED.
- APPROPRIATELY SIZED FENCING WILL BE PLACED AROUND WETLANDS AND WATERBODIES ADJACENT TO THE WORK AREA PRIOR TO ANY TRENCHING ACTIVITIES.
- STOCKPILE SLOPES WILL BE TWO TO ONE OR FLATTER, AND STOCKPILES WILL NOT EXCEED 35 FEET IN HEIGHT.
- TEMPORARY STREAM AND WETLAND CROSSINGS SHALL BE INSTALLED AS INDICATED ON THE E&S PLAN SHEETS AND AS PER THE E&S DETAIL SHEETS. FOR ALL OTHER SURFACE OR STORMWATER CONVEYANCES THAT ARE NOT IDENTIFIED ON THE PLAN SHEETS AS STREAMS DUE TO THE LACK OF DEFINED BED AND BANK CONDITIONS, A TEMPORARY BRIDGE SUCH AS A TIMBER MAT OR AN APPROVED EQUAL SHALL BE INSTALLED, PRIOR TO CROSSING THE CONVEYANCE IF THERE IS FLOWING WATER PRESENT AT TIME OF CONSTRUCTION IN THAT AREA.
- TEMPORARY ROW DIVERSIONS WILL BE INSTALLED IMMEDIATELY AFTER INITIAL DISTURBANCE OF THE SOIL IN ACCORDANCE WITH THE DETAILS AND SPACING SIZING REQUIREMENTS. TEMPORARY ROW DIVERSIONS WILL BE CONSTRUCTED OF SOIL TO REDUCE RUNOFF VELOCITY AND DIVERT WATER OFF OF THE PIPELINE ROW. TEMPORARY ROW DIVERSIONS WILL BE MAINTAINED UNTIL PERMANENT ROW DIVERSIONS HAVE BEEN INSTALLED.
- TRENCH DEWATERING, IF NEEDED, WILL BE CONDUCTED USING A PUMP AND HOSE. WATER WILL BE RELEASED INTO A FILTER BAG THAT WILL BE LOCATED IN A WELL-VEGETATED UPLAND AREA.
- TRENCH BREAKERS (PLUGS) WILL BE INSTALLED IN SLOPING AREAS GREATER THAN FIVE PERCENT AND ON SLOPES ADJACENT TO STREAMS, WETLANDS, AND ROAD CROSSINGS TO PREVENT SUBSURFACE EROSION. TRENCH BREAKERS (PLUGS) WILL BE INSTALLED IN ACCORDANCE WITH THE SPACING REQUIREMENTS.
- THE WORK AREA WILL BE BACKFILLED FOLLOWING PIPELINE INSTALLATION OR OTHER EXCAVATION WORK. IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, THE SUBSOIL WILL BE REPLACED FIRST, AND THEN THE TOPSOIL WILL BE SPREAD OVER THE AREA FROM WHICH IT WAS REMOVED. DISTURBED AREAS WILL BE RESTORED TO THEIR ORIGINAL TOPOGRAPHIC CONTOURS.
- ROW DIVERSIONS, WHEN REQUIRED, WILL BE CONSTRUCTED WITH A 5 TO 10 PERCENT (TYPICAL) OUTSLOPE TO DIVERT SURFACE FLOW TO A WELL-VEGETATED STABLE AREA.
- IMMEDIATELY FOLLOWING BACKFILLING, ALL DISTURBED AREAS WILL BE GRADED IN PREPARATION FOR SEEDING AND MULCHING. THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. ESTABLISHMENT OF FINAL COVER MUST BE INITIATED NO LATER THAN SEVEN DAYS AFTER REACHING FINAL GRADE.

- FOR THREE TO ONE OR STEEPER SLOPES THE DISTURBED AREA WILL BE VERTICALLY TRACKED. EROSION CONTROL FABRIC WILL BE INSTALLED.
- TEMPORARY SEDIMENT BARRIERS WILL BE MAINTAINED, UNTIL VEGETATION HAS BECOME ESTABLISHED WITH A UNIFORM COVERAGE OF DENSITY OF 70 PERCENT OR MORE WITHIN THE DISTURBED ROW. ONCE THIS COVERAGE HAS BEEN OBTAINED, APPROPRIATE CONTROLS WILL BE REMOVED FROM THE WORK AREA. AREAS DISTURBED DURING THE REMOVAL OF THE EROSION CONTROLS WILL BE STABILIZED IMMEDIATELY. THE 70 PERCENT REQUIREMENTS REFERS TO THE TOTAL AREA VEGETATED AND NOT A PERCENT OF THE SITE.
- ALL WASTE MATERIAL WILL BE TRANSPORTED OFF-SITE FOR RECYCLING AND/OR DISPOSAL. WHERE FEASIBLE, CONSTRUCTION WASTE MATERIALS WILL BE RECYCLED OR WILL BE TAKEN TO AN APPROVED FACILITY FOR DISPOSAL. AS STATED PREVIOUSLY, EXCESS SOIL MATERIAL, IF ANY, WILL BE SPREAD AND REVEGETATED WITHIN THE ROW. OFF-SITE SPOIL AND/OR BORROW SITES MUST BE OPERATED UNDER A CURRENT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.
- EROSION CONTROL BLANKETS SHALL NOT BE INSTALLED ON AGRICULTURAL AREAS EVEN IF SLOPES ARE STEEPER THAN THREE TO ONE. THESE AREAS MAY REQUIRE SPECIAL ATTENTION/RESTORATION UNTIL ADEQUATE GROWTH IS ACHIEVED.
- TEMPORARY STOCKPILES NEED SILT FENCE / SOCK PLACED ADJACENT TO ROW.
- CONTRACTOR IS EXPECTED TO MINIMIZE DISTURBANCE WITHIN THE ROW.

MAINTENANCE SCHEDULE

AFTER CONSTRUCTION IS COMPLETED, ALL BMPs WILL BE REMOVED AND ANY LAND DISTURBED BY REMOVAL WILL BE PERMANENTLY STABILIZED, UNLESS OTHERWISE SPECIFIED. ALL MAINTENANCE MUST BE COMPLETED IMMEDIATELY AFTER AN INSPECTION IDENTIFIES THAT A BMP IS NOT FUNCTIONING AS REQUIRED.

- IF DURING CONSTRUCTION, CONCENTRATED FLOW AREAS FORM DUE TO A STORM EVENT AND ANY AREA BECOMES UNSTABLE, THE AREA WILL BE STABILIZED BY PLACING SIZE D50 (FOUR-INCH DIAMETER) STONE IN THE CONCENTRATED FLOW AREAS. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.
- ALL E&S CONTROLS WILL BE INSPECTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD DURING THE ENTIRE PROJECT.
- SEDIMENT MUST BE REMOVED WHERE ACCUMULATION REACHES ONE-HALF THE ABOVE GROUND HEIGHT OF A SILT FENCE (ALL TYPES).
- SILT FENCE SECTIONS, WHICH HAVE BEEN UNDERMINED OR TOPPED, SHOULD IMMEDIATELY BE REPAIRED.
- REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.
- LOGS OF SEDIMENT CONTROL INSPECTION MUST BE KEPT WITH THE INSPECTORS CONSTRUCTION RECORDS AND INCLUDE DATE, TIME, AND CONDITION OF BMPs AND ANY NECESSARY MAINTENANCE. A BMP INSPECTION REPORT IS INCLUDED IN APPENDIX I.
- TEMPORARY AND PERMANENT E&S CONTROL BMPs SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT GREATER THAN 0.5-INCH OF RAIN PER 24-HOUR PERIOD.
- TEMPORARY E&S CONTROL BMPs SHOULD BE REMOVED FOLLOWING CONFIRMATION THAT 70 PERCENT PERENNIAL VEGETATIVE COVERAGE IS ESTABLISHED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPs OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

MATERIAL WASTE HANDLING AND RECYCLING

1. GARBAGE DISPOSAL IS HANDLED THROUGH ONE OF THE LOCAL WASTE MANAGEMENT PROVIDERS/FACILITIES. THE CONTRACTOR WILL LEASE A DUMPSTER FOR THE DURATION OF THE PROJECT WHICH WILL BE DISPOSED OF AT A LICENSED/PERMITTED MUNICIPAL LANDFILL.
2. THE CONTRACTOR WILL DISPOSE OF ALL SCRAP MATERIAL. THE SCRAP MATERIAL MUST BE REMOVED FROM THE SITE AND DISPOSED OF OR RECYCLED AT A PROPERLY LICENSED/PERMITTED FACILITY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY PERMITS AND/OR DISPOSAL FEES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ASSURE THAT ALL MATERIALS ARE HANDLED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS, RULES, AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THOSE ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY, WVDEP, AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
3. CONSTRUCTION WASTE MATERIALS, INCLUDING BUT NOT LIMITED TO BENTONITE, POLY PIPE SHAVINGS, AND SANDBAGS, WILL BE RECYCLED OR WILL BE TAKEN TO THE NEAREST APPROVED FACILITY FOR DISPOSAL. EXCESS SOIL MATERIAL, IF ANY, WILL BE SPREAD AND REVEGETATED WITHIN THE ROW. OFF-SITE SPOIL AND/OR BORROW SITES MUST BE OPERATED UNDER A CURRENT NPDES.

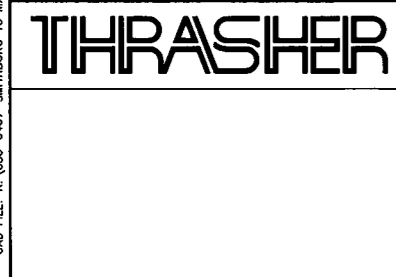
SEEDING

- SEE DETAILS 25-27 FOR TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCHING REQUIREMENTS.

POLLUTANT CONTROLS

- ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE WATER. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.
- COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-INERT WASTES PRESENT ON THE SITE.
- MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DE-GREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO SURFACE WATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. EMERGENCY REPAIRS MAY BE PERFORMED ON-SITE USING TEMPORARY PLASTIC PLACED BENEATH AND, IF RAINING, OVER THE VEHICLE.
- APPLICATION OF AGRICULTURAL CHEMICALS INCLUDING FERTILIZERS AND PESTICIDES SHALL BE CONDUCTED IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO SURFACE WATER RUNOFF. MANUFACTURERS' RECOMMENDATIONS FOR APPLICATION RATES AND PROCEDURES SHALL BE FOLLOWED.
- BMPs SHALL BE USED TO PREVENT OR TREAT CONTAMINATION OF SURFACE WATER RUNOFF BY PH MODIFYING SOURCES. THESE SOURCES INCLUDE BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, AND CONCRETE PUMPING AND MIXER WASHOUT WATERS.
- REPORT SPILLAGE OR DISCHARGE OF POLLUTANTS WITHIN 24-HOURS.

LAYOUT TAB: E&SCP1 050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\E&SCP DETAIL SHEETS.dwg PLOT DATE/TIME: 9/7/2017 8:42 AM USER: jessico m. delany



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ISSUED FOR PERMITTING
DATE: XX/XX/XXXX
AFE # A05924

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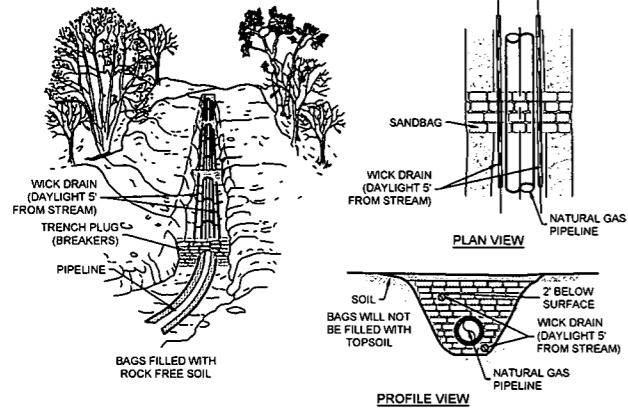
SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

REVISION			
NO.	DESCRIPTION	DATE	BY

GENERAL INFORMATION
1. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero
MidstreamPartners LP
**SMITHBURG TO MXP RESIDUE PIPELINE
ESCP DETAILS**
PROPOSED 30" HIGH PRESSURE
STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017	AFE No.: A05924
SCALE: AS SHOWN	
DRAWN BY: JDL, RA, (TTT)	SHEET 13
CHECKED: AR, JRI, (TTT)	
SHT. NAME: 050-6467\MXP\ESCP1	REV. 0

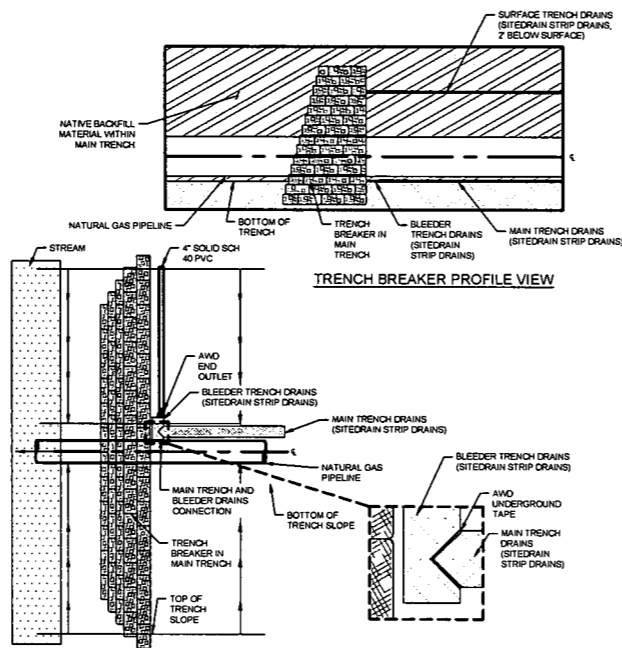


TRENCH BREAKER (PLUG) SPACING (FEET)

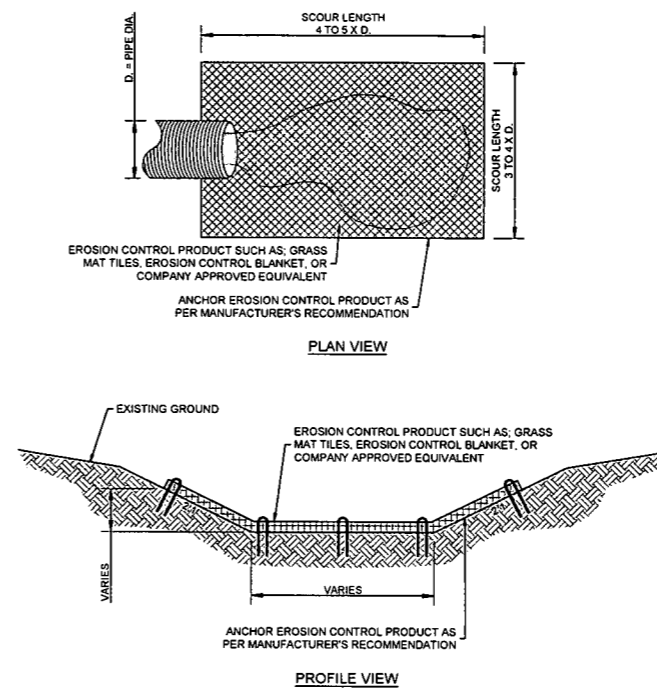
ALIGNMENT SLOPE %*	SPACING L (FT)	PLUG MATERIAL
< 5 %	1,000	** EARTH FILLED SACKS
5-15 %	500	** EARTH FILLED SACKS
15-25 %	300	** EARTH FILLED SACKS
25-35 %	200	** EARTH FILLED SACKS
35-100 %	100	** EARTH FILLED SACKS
> 100 %	50	** USE CEMENT FILLED SACKS (MELTED) OR MOSTABED STONE

* TRENCH BREAKERS (PLUGS) ARE REQUIRED AT ALL STREAM, RIVER, OR WATER-BODY CROSSINGS REGARDLESS OF TRENCH SLOPE.
 ** TOP SOIL MAY NOT BE USED TO FILL SACKS. TRENCH BREAKERS (PLUGS) WITH CEMENT FILLED SACKS SHALL BE INSTALLED AND ALLOWED TO CURE WITHOUT ANY SURFACE WATER COMING INTO CONTACT WITH THEM. CONTRACTOR SHALL VERIFY CEMENT HAS CURED AND HARDENED PRIOR TO REMOVING ANY BMPs AROUND THE TRENCH BREAKER (PLUG) AREA.
 *** TRENCH BREAKERS WITH CEMENT FILLED SACKS SHALL BE INSTALLED AND ALLOWED TO CURE WITHOUT ANY SURFACE WATER COMING INTO CONTACT WITH THEM. CONTRACTOR SHALL VERIFY CEMENT HAS CURED AND HARDENED PRIOR TO REMOVING ANY BMPs AROUND THE TRENCH BREAKER AREA.

7 PERMANENT TRENCH BREAKER
NTS

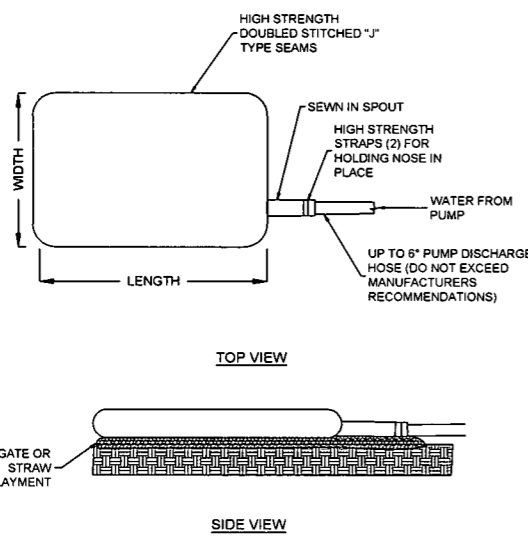


8 AMERICAN WICK DRAIN DETAIL
NTS



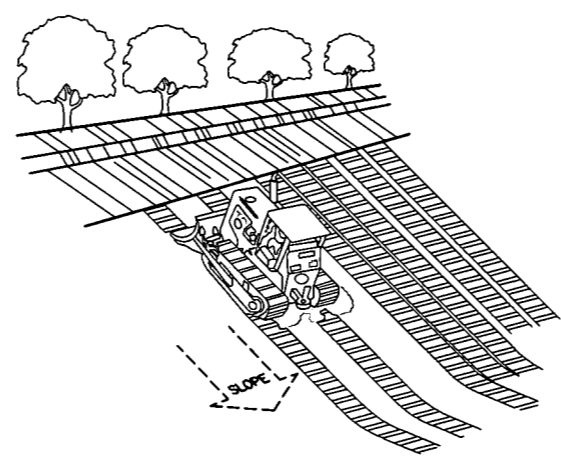
9 TRENCH PLUG DRAIN OUTFALL EROSION PROTECTION DETAIL
NTS

NOTES:
 1) PREPARE SOIL BEFORE INSTALLING EROSION CONTROL PRODUCTS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2) FOR CULVERT AND OUTFALL APPLICATIONS, SCOUR PROTECTION SHOULD EXTEND A MINIMUM WIDTH OF 3-4 TIMES THE PIPE DIAMETER AND A MINIMUM LENGTH OF 4-5 TIMES THE PIPE DIAMETER (SEE PLAN VIEW). WITH STEEPER CHANNEL GRADIENTS, THE LENGTH OF SCOUR PROTECTION MAY NEED TO BE EXTENDED.
 3) PLACE STAPLES/ANCHORS IN THE APPROPRIATE PATTERN. IN SOFT OR HIGHLY ERODIBLE SOILS, PERCUSSION EARTH ANCHORS MAY BE REQUIRED.
 (SEE MANUFACTURERS RECOMMENDATIONS FOR ADDITIONAL INSTALLATION INSTRUCTIONS).



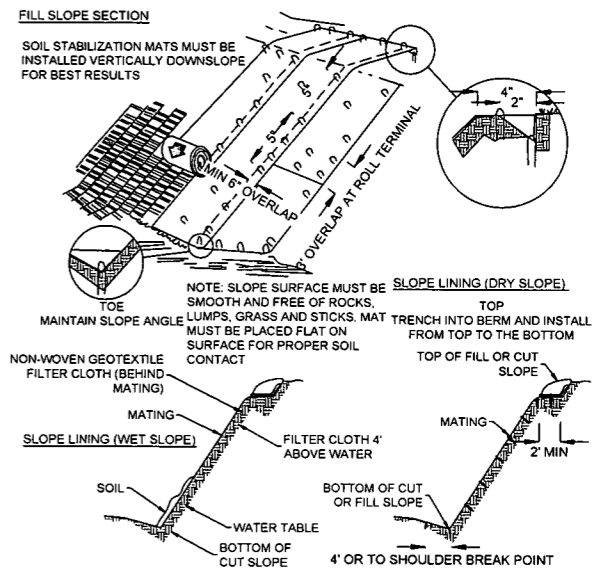
NOTES:
 1. UTILIZE VEGETATED STRIP WHERE APPLICABLE.
 2. MAXIMIZE DISTANCE BETWEEN LOCATION OF FILTER BAG AND AQUATIC FEATURE.
 3. FILTER BAG MUST BE PLACED ON FLAT SURFACE.

10 FILTER BAG
NTS



TRACKING SLOPE IS DONE BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR. (NOTE: IF A BULLDOZER IS USED, THE BLADE SHOULD BE UP). CARE SHOULD BE EXERCISED ON SOILS HAVING A HIGH CLAY CONTENT TO AVOID OVER-COMPACTION.

11 TRACKING
NTS



12 ROLLED EROSION CONTROL PRODUCTS
NTS

THRASHER

IFP

ISSUED FOR PERMITTING
 DATE: XX/XX/XXXX
 AFE # A05924

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	QTY

NO.	DESCRIPTION	DATE	BY

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Midstream Partners LP

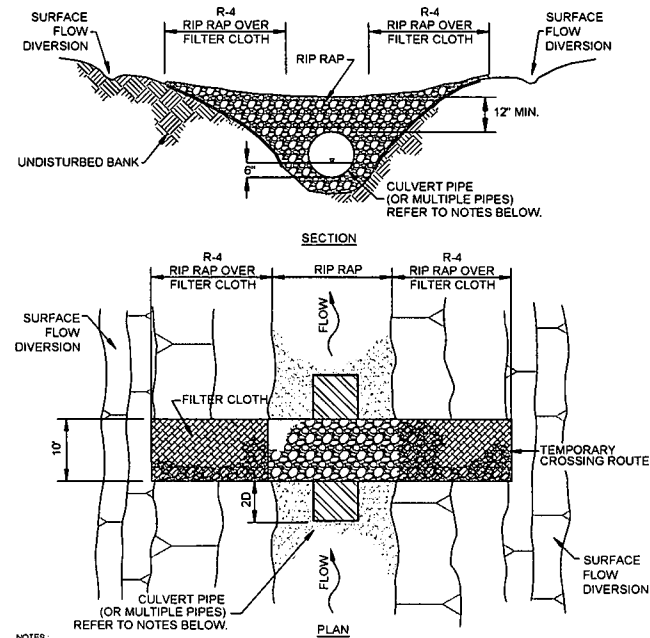
SMITHBURG TO MXP RESIDUE PIPELINE ESCP DETAILS

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
 DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017 AFE No.: A05924
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 CHECKED: J.S. (JH) (TTO) SHEET 16
 SHT. NAME: 050-6467-MXP-ESCP4 REV. 0

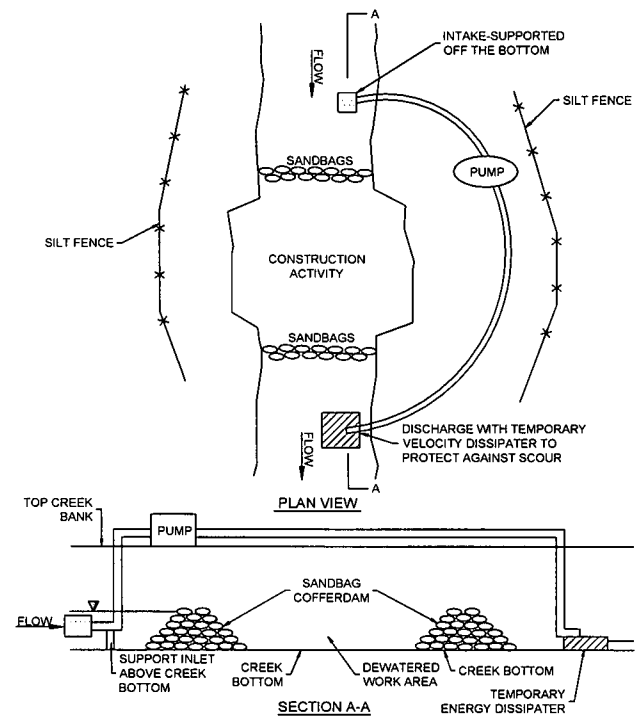
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USER: jasko m. delaney
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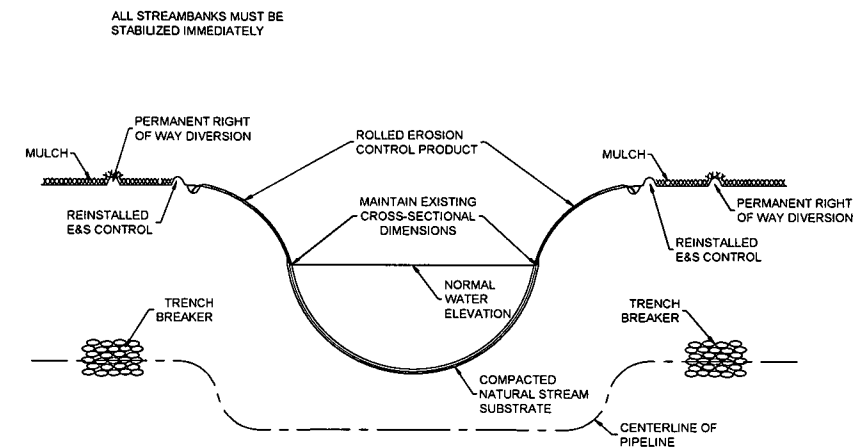


- NOTES:
1. PIPE SHOULD EXTEND BEYOND TOE OF ROADWAY.
 2. ROADWAY SHOULD BE DERESSED OVER CULVERT TO ALLOW FOR OVERFLOW.
 3. CLEAN ROCK FILL SHALL BE USED TO GUARD AGAINST EROSION AND SEDIMENTATION. STREAMBED MATERIAL IS NOT TO BE USED.
 4. MINIMUM SIZE DIAMETER CULVERT TO BE INSTALLED IS 12 INCHES.
 5. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 8 INCHES ABOVE ORIGINAL GRADE.
 6. PROPER EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE INSTALLED.

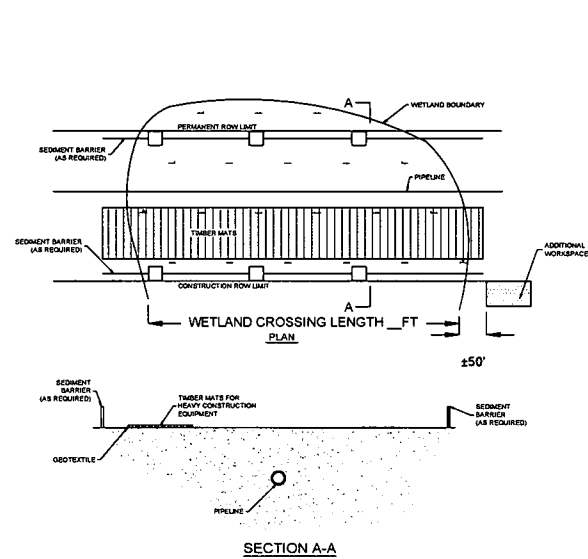
20 ROCK FLUME BRIDGE
NTS



21 DAM & PUMP AROUND
NTS

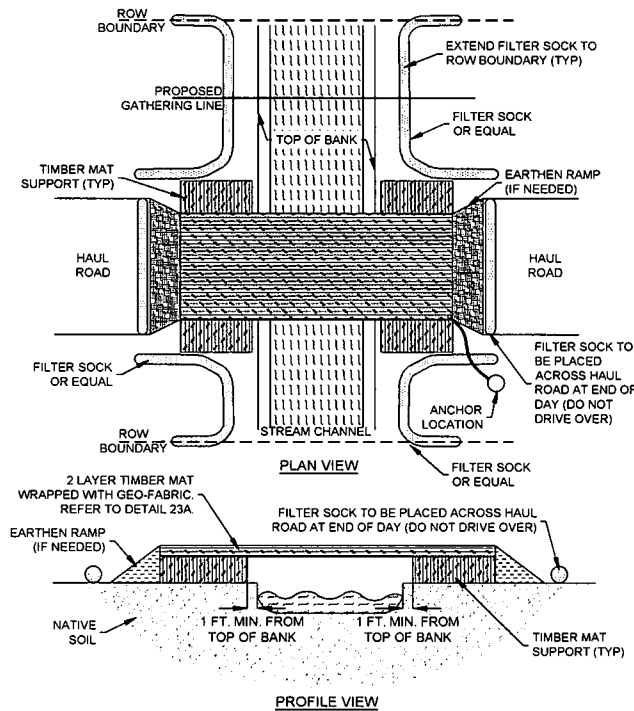


22 STREAM BANK STABILIZATION
NTS

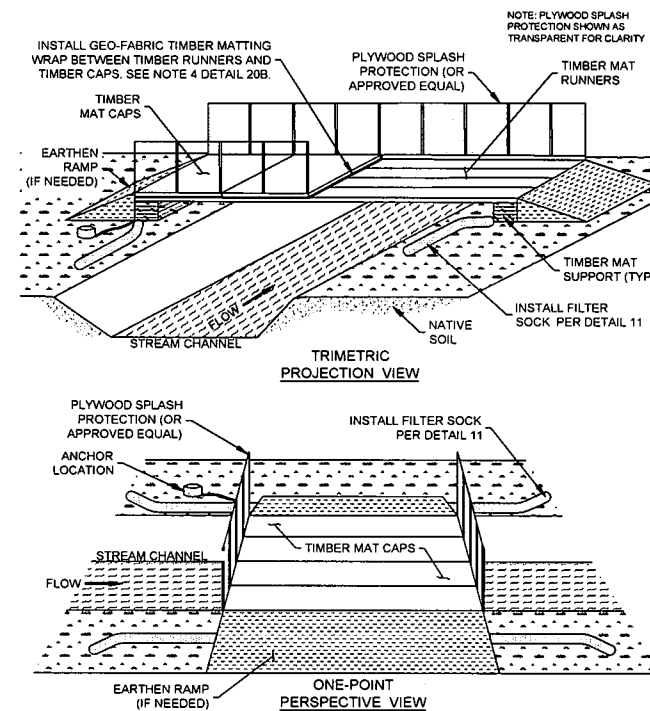


- GENERAL CONSTRUCTION SEQUENCE NOTES:
1. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS PRIOR TO EARTH DISTURBANCE.
 2. SEDIMENT BARRIERS WILL BE INSTALLED AT THE EDGE OF THE ROW.
 3. WORKING SIDE WILL BE STABILIZED WITH PRE-FABRICATED MATS, AS NEEDED TO PROVIDE A FIRM SURFACE FOR CONSTRUCTION EQUIPMENT FOR ALL DELICATE WETLAND AREAS. GEOTEXTILE SHALL BE PLACED UNDER THE MATS TO PREVENT MOVEMENT OR PUMPING OF THE SOIL THROUGH THE MATS.
 4. WETLAND MATERIAL WILL BE STRIPPED, SEGRGATED, AND RESTORED UPON COMPLETION OF THE CROSSING.

23 TYPICAL EROSION AND SEDIMENT CONTROL FOR WETLAND CROSSINGS
NTS



24 TYPICAL EROSION AND SEDIMENT CONTROL FOR STREAM CROSSINGS
NTS



24A TYPICAL EROSION AND SEDIMENT CONTROL FOR STREAM CROSSINGS
NTS

CONSTRUCTION SPECIFICATIONS AND GENERAL SPECIFICATIONS:

1. CROSSING ALIGNMENT SHALL BE AT RIGHT ANGLE TO THE STREAM. WHERE THE APPROACH CONDITIONS DICTATE, THE CROSSING MAY VARY 15 DEGREES FROM THE LINE DRAWN PERPENDICULAR TO THE CENTERLINE OF THE STREAM.
2. TIMBER MATTING RUNNERS SHALL BE PLACED PERPENDICULAR TO STREAM AND ADJACENT TO ONE ANOTHER.
3. TIMBER MATTING CAPS SHALL BE PLACED PARALLEL TO STREAM AND ADJACENT TO ONE ANOTHER FOR THE ENTIRE SPAN OF THE BRIDGE.
4. TIMBER MATTING CAPS SHALL BE WRAPPED UNDERNEATH AND ALONG THE SIDES OF TIMBER MAT WITH GEO-FABRIC MATERIAL OR APPROVED EQUAL. EXTEND GEO-FABRIC MATERIAL AT MINIMUM 5 FEET ON EITHER SIDE TO ALLOW ENOUGH MATERIAL TO WRAP UP AND TIE INTO PLYWOOD SPLASH PROTECTION FENCING (OR APPROVED EQUAL) TO CONTROL SEDIMENT FROM ENTERING STREAM.
5. PLYWOOD SPLASH PROTECTION FENCING (OR APPROVED EQUAL) SHALL BE SECURELY ATTACHED ALONG THE OUTER SIDES OF TIMBER MATTING TO CONTROL SEDIMENT COLLECTION AND ALLOW GEO-FABRIC MATERIAL TO BE STAPLED TO OUTSIDE OF PLYWOOD.
6. BRIDGE SHALL BE CONSTRUCTED MINIMUM 1 FOOT OUTSIDE TOP OF BANK.
7. BRIDGE SHALL BE SECURELY ANCHORED AT ONLY ONE END USING STEEL CABLE OR CHAIN. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL ANCHORS. ANCHORING SHALL BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
8. ALL AREAS DISTURBED DURING BRIDGE INSTALLATION SHALL BE STABILIZED IMMEDIATELY.
9. PLYWOOD SPLASH PROTECTION (OR APPROVED EQUAL) SHALL BE WELL MAINTAINED, CLEARING SEDIMENT WHEN NECESSARY.
10. FILTER SOCK SHALL BE PLACED ALONG BOTH ENTRANCES OF THE BRIDGE WHEN NOT IN USE FOR MORE THAN 24 HOURS AND/OR PRIOR TO PRECIPITATION EVENTS. DO NOT DRIVE OVER FILTER SOCK.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

GENERAL INFORMATION

1. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

REVISION

NO.	DESCRIPTION	DATE	BY

Antero
MidstreamPartners LP

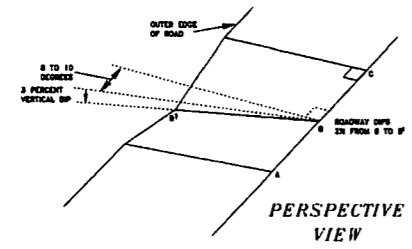
**SMITHBURG TO MXP RESIDUE PIPELINE
ESCP DETAILS**

PROPOSED 30" HIGH PRESSURE
STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017
SCALE: AS SHOWN
DRAWN BY: JJA, P.A. (TDS)
CHECKED: AR, JKH (TDS)

SHEET 18

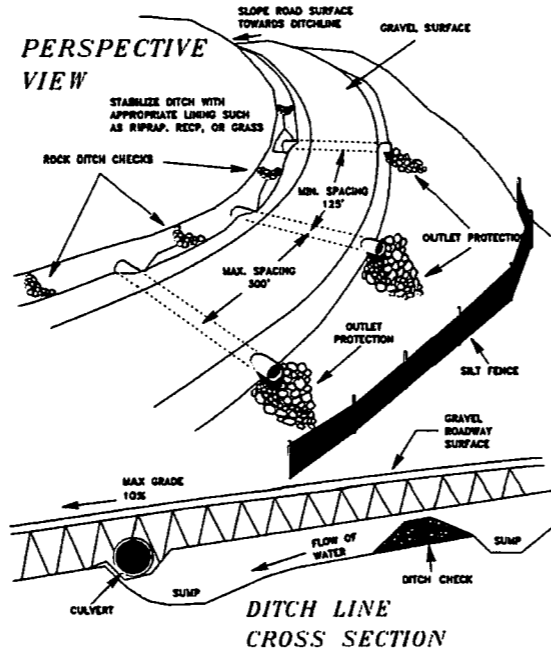
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REV. 0



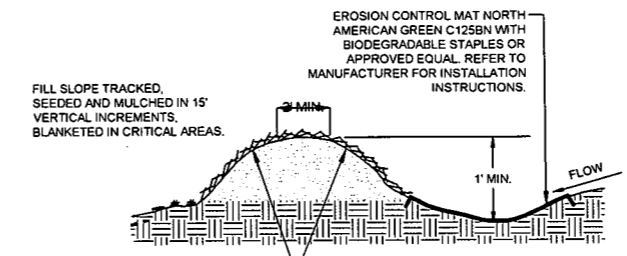
SPACING = 400/FE GRADE + 75'

Table 3.35.1		Average Slope of Watershed			
Drainage Area (Acres)	Curve # Size				
	1%	4%	8%	16%	
1-75	24	31	30	30	
75-50	24	30	30	30	
51-100	25	30	30	30	
101-150	30	42	48	48	
151-200	36	42	48	54	
200-250	42	48	54	60	
251-300	42	48	54	60	
301-350	42	48	54	60	
351-400	42	54	60	66	
401-450	42	54	60	72	
451-500	42	54	60	72	
501-550	48	60	66	72	
511-600	48	60	66	72	
601-840	48	60	72	72	

29 BROAD-BASE DIP
NTS



30 EROSION AND SEDIMENT CONTROL FOR ACCESS ROADS AND DRIVEWAYS
NTS

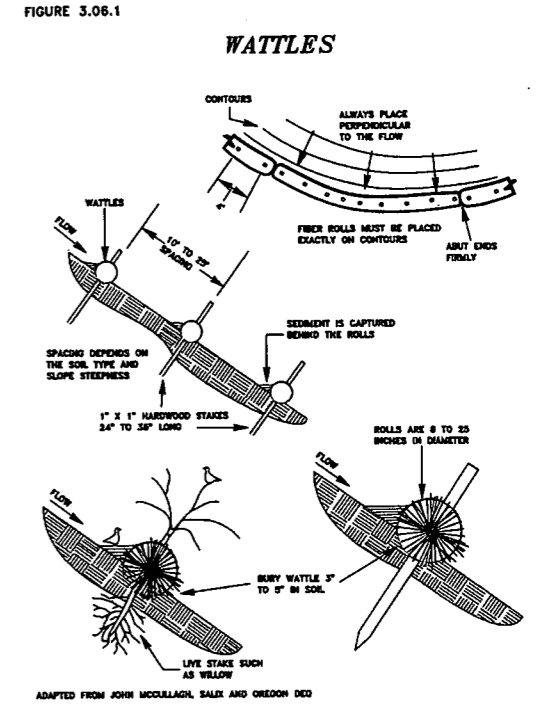


- INSTALLATION:**
- WHEN CLEARING THE LOCATION FOR THE DIVERSION, ONLY CLEAR ENOUGH ROOM FOR CONSTRUCTION AND MAINTENANCE EQUIPMENT ACCESS. DO NOT CLEAR ANY ADDITIONAL AREA UNTIL ALL EROSION CONTROL DEVICES ARE IN PLACE.
 - REMOVE ALL STUMPS, ROOTS, AND OTHER DEBRIS AND DISPOSE OF THEM PROPERLY.
 - INSTALL DIVERSION AND COMPACT AS SHOWN IN DETAIL. INSURE POSITIVE DRAINAGE DURING CONSTRUCTION OF BERM.
 - SCARIFY, SEED, MULCH AND TACK DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF BERM.
 - INSTALL EROSION CONTROL MAT NORTH AMERICAN GREEN C125N PER MANUFACTURER'S RECOMMENDATIONS AND KEY INTO SIDES OF CHANNEL TO PREVENT WATER FROM UNDERMINING OR DAMAGING CHANNEL LINER.

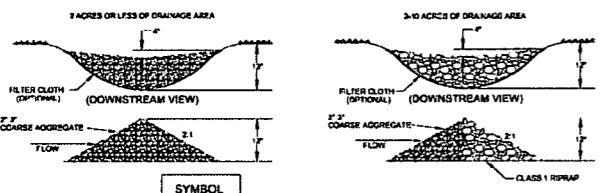
- NOTES:**
- TEMPORARY BERMS SHALL BE PLACED, MAINTAINED, AND ADJUSTED CONTINUOUSLY UNTIL 90% VEGETATIVE GROWTH IS ESTABLISHED ON THE EXTERIOR SLOPES WITH PERMANENT STORM DRAINAGE FACILITIES FUNCTIONING.
 - BERMS SHALL OUTLET TO SLOPE PIPES, CHANNELS, OR OTHER APPROVED MEANS OF CONVEYING RUNOFF TO A SEDIMENT TRAP, SEDIMENT BASIN, OR COLLECTOR CHANNEL.
 - CHANNEL BEHIND BERM SHALL HAVE POSITIVE GRADE TO OUTLET AND AN APPROPRIATE PROTECTIVE LINING.
 - BERM SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
 - AN ACCEPTABLE ALTERNATIVE TO TOP-OF-SLOPE BERM IS TO CONTINUOUSLY GRADE THE TOP OF FILL TO DIRECT RUNOFF AWAY FROM THE FILL/SLOPE TO A COLLECTOR CHANNEL, SEDIMENT TRAP, OR SEDIMENT BASIN.

MAINTENANCE:
INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS. REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

31 TEMPORARY DIVERSION BERM FOR OFFSITE WATER
NTS

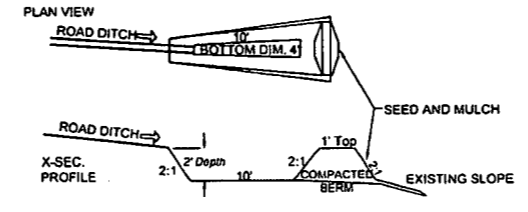


32 WATTLES
NTS



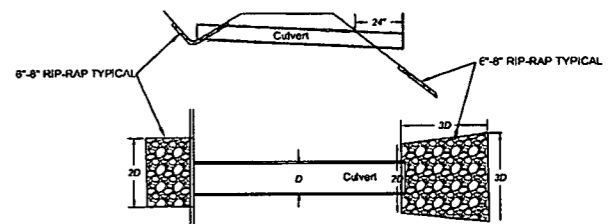
33 CHECK DAM
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

NOTES:
DITCH CHECKS WILL BE CONSTRUCTED IN CHANNELS TO MINIMIZE EROSION. THE CONSTRUCTION OF THE DITCH CHECK WILL FOLLOW THE GUIDELINES ABOVE. DITCH CHECKS WILL BE CONSTRUCTED SO THAT THE ELEVATION OF THE TOP OF THE DOWNSTREAM DITCH CHECK IS EQUAL TO THE ELEVATION OF THE BASE OF THE DITCH CHECK ABOVE. THIS CREATES A SITUATION WHERE THE CHANNEL HAS NO CHANNELIZED FLOW PER SAY, THE WATER FLOWING DOWN THE DITCH WILL CASCADE FROM THE POOL CREATED BY ONE DITCH CHECK INTO THE POOL CREATED BY THE DOWNSTREAM DITCH CHECK THIS DISSIPATES ENERGY AND SLOWS THE WATER FLOW REDUCING EROSION AND ALLOWING ANY SEDIMENT IN THE DRAINAGE TO FALL OUT.



34 LEVEL SPREADER
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

NOTES:
LEVEL SPREADER TO BE CONSTRUCTED IN AREAS WHERE A CULVERT OR CHANNEL MUST EMPTY ONTO GROUND WITH NO ASSOCIATED CHANNELIZED FLOW. THE PURPOSE OF THE LEVEL SPREADER IS TO DISSIPATE ENERGY AND SPREAD THE FLOW OUT OVER A SIGNIFICANT AREA. THIS WILL TAKE A CHANNELIZED FLOW AND ESSENTIALLY CONVERT IT BACK TO A SHEET FLOW OVER THE GROUND SURFACE. THE SHEET FLOW WILL HAVE LESS CHANCE FOR EROSION CONSIDERING THE LOWER VELOCITIES AND FLOW VOLUMES IN ANY PARTICULAR AREA. THEY MAY BE CONSTRUCTED MUCH LIKE A SUMP WHERE THE CHANNEL OR CULVERT EMPTIES INTO THE SUMP AND THEN OVERTOPS THE BERMED AREA. BUT THEY MAY OFTEN CONTAIN GRAVEL IN THE SUMPED AREA. THEY WILL ALLOW BE CONSTRUCTED ALONG THE GROUND CONTOUR.



35 TYPICAL CULVERT & CULVERT INLET/OUTLET PROTECTION
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

NOTES:
INLET AND OUTLET PROTECTION IS ESSENTIALLY GRAVELS AND/OR RIP RAP PLACED AT BOTH THE INLET AND OUTLET SIDES OF CULVERTS. THE GRAVELS WILL HELP TO SLOW THE FLOW OF WATER, AND DISSIPATE ENERGY. THIS WILL IN TURN DECREASE THE CHANCES OF EROSION AND ALSO ALLOW ANY SEDIMENT IN THE WATER TO SETTLE OUT.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: XX/XX/XXXX

AFE # A05924

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NO.	DESCRIPTION	QTY

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Antero
Midstream Partners LP

SMITHBURG TO MXP RESIDUE PIPELINE ESCP DETAILS

PROPOSED 30" HIGH PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 9/7/2017 AFE No: A05924
SCALE: AS SHOWN
DRAWN BY: JDA, RJA, (TTC) SHEET 20
CHECKED BY: AS, ZSA, (TTC)
SHT. NAME: 050-6467-MXP-ESCPB REV. 0

USER: jpasico.m. delaney PLOT DATE/TIME: 9/7/2017 8:48 AM LAYOUT TAG: ESCPB CAD FILE: R:\050-6467-SMITHBURG TO MXP RESIDUE-ANTERO MIDSTREAM-Survey\PLANS\ESCP DETAIL SHEETS.dwg

